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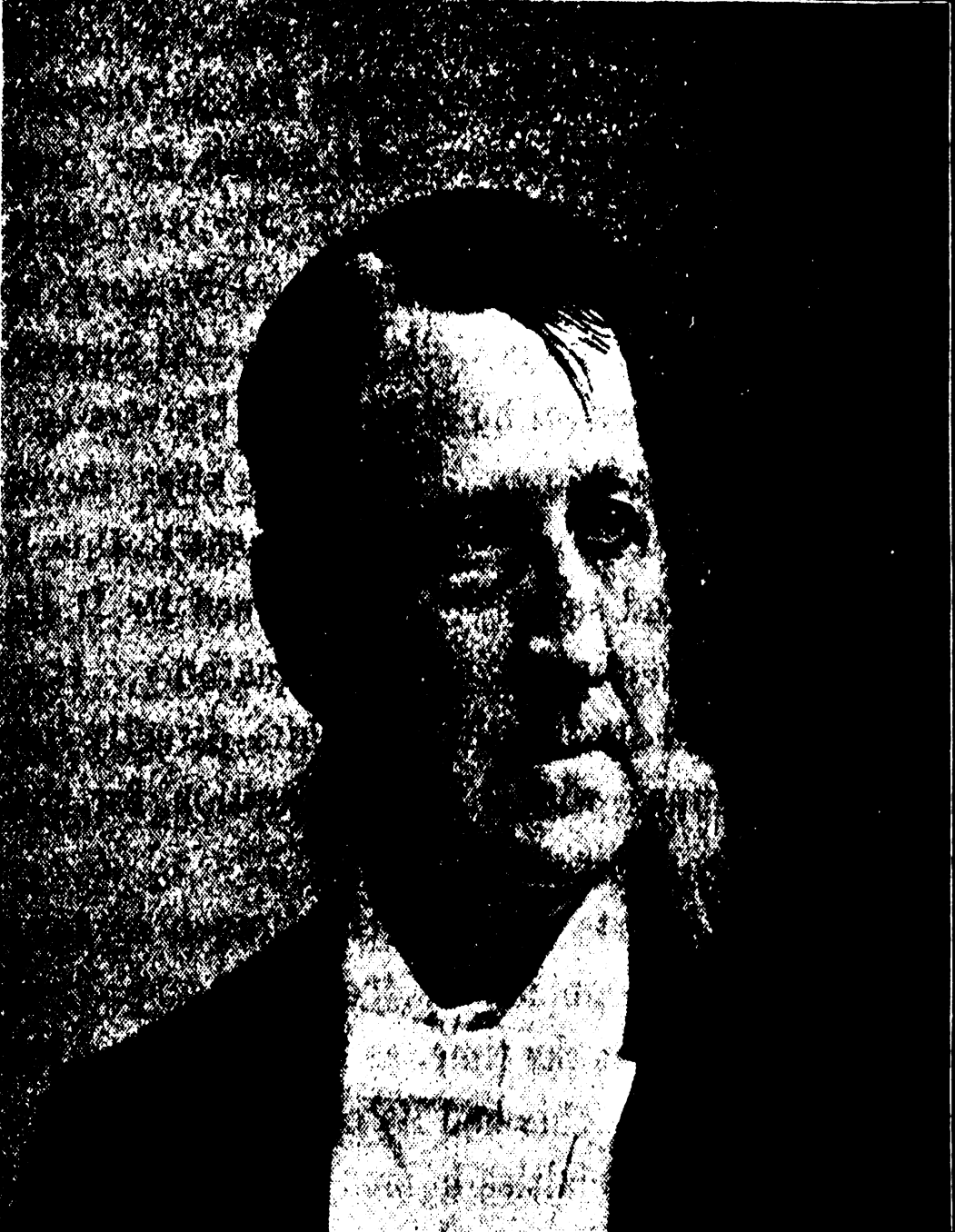
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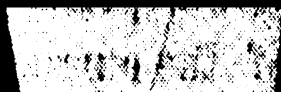
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JANUARY, 1896

Fourth Series.

THE
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AND LABORATORY.
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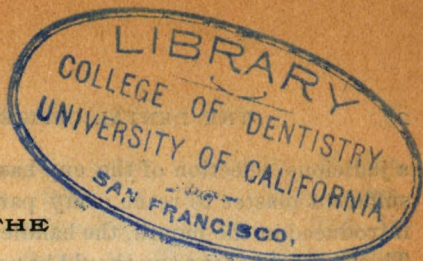
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THE Dental Office and Laboratory.

FOURTH SERIES.

VOL. X.

PHILADELPHIA, JANUARY, 1896.

No. 1.

THE CONSTRUCTION OF ARTIFICIAL TEETH.

By THEODORE F. CHUPEIN, D.D.S., Philadelphia, Pa.

IMPRESSIONS.

The first effort is the taking of the impression. On the perfection of this depends subsequent success. The impression cup should assimilate as nearly as possible to the form of the mouth. If the mouth be flat the impression cup should be flat; if the roof of the mouth be high an impression cup which corresponds to this form should be selected. The cup should be about a quarter of an inch larger than the mouth or gum on which it is to be used. We do not approve the plan of taking an impression in wax, and afterwards using this impression as a tray wherein plaster of Paris is put. If plaster of Paris be the material selected to take the impression, the posterior part of the cup should be so arranged with a piece of base-plate wax fastened to it, with heat, as to prevent the escape of the plaster into the fauces. In mixing the plaster for the impression, the plaster is added to the water, not the water poured on the plaster. To make the mouthful as little disagreeable as possible, a pinch of salt, no more than would pile on a dime, may be added to the creamy batter at the last moment. This causes the plaster to set quicker, so that the tray is kept in the mouth a shorter time. When adding the plaster to the water in the bowl, it should not be stirred until every particle of it is well water-soaked. There is no necessity of making the batter thick, as by so doing the operator is unnecessarily hurried, and failure is frequently the result. The batter should be creamy, and when the thickening is observed the cup is introduced into the mouth. If the aperture be small and the maxilla large, the cup should be introduced side-wise, pushing out the cheek on one side, while the lips are brought over the other side. The plaster should not be piled up in the cup, but should be on a level with its rims. If

a judicious selection of the cup has been made, the cup will contain sufficient plaster to reach every part of the gum. When the cup is introduced in the mouth, the handle should be on a line with the nose. The back part of the cup should be pressed against the roof of the mouth *first* and the front part of it brought up *afterwards*. While the middle finger of the left hand holds the cup steadily in position, the lips are raised with the fingers of the right hand in order to permit the escape of air, after which the lips are lowered and the plaster matted against the outer parts of the alveolar ridge by pressing against the lips with the finger. The cup should be held *immovably* against the gums and not permitted to move until the plaster has set hard. With plaster prepared for taking impressions, to which salt has been added as advised, by counting 500 the impression will be generally hard enough to remove. As long as the plaster in the bowl, however, shows a glistening surface, although it may break with a clean fracture, it is not safe to remove the impression from the mouth. The plaster in the bowl should have a dull, dry surface before making this attempt. In edentulous mouths, where the arch is high, it is a good plan to daub a little plaster, with the spatula, over this part, as it frequently happens that air may be confined at this point, if reliance is had only on what is in the tray, which would, in such case, prevent a perfect impression.

To remove the impression from the mouth, by raising the lips so as to admit air between the plaster and the gum surface, this may effect it. At times, however, it adheres so firmly that this will not effect the removal. By holding up the lips and squirting water from the dental syringe between the lips and the impression, and at the same time working the cup up and down, by holding the handle, the removal will be accomplished. The firm adhesion of the impression is not always an indication that the plate made from such an impression will adhere as firmly. When the gums are uniformly hard, plaster is indicated as the proper material to use; but when the gum is hard and soft in different places, or when the gum is soft all over, plaster alone should not be used. We have been at considerable trouble to overcome these annoying causes, doing the work over and over in order to attain sufficient adhesion that the plate could be worn with comfort. Our first procedure after taking a plaster impression of an edentulous mouth is to make the model.

On this model we trace the line on which the plate is to rest. A wax base plate is moulded on the model and trimmed, with the hot wax spatula, to the line which was marked on it. At the median line, next the soft palate, the wax base plate is slightly thickened. Inlets

are cut at this point, also at each tuberosity of the maxilla of the model. The inlet at the median line is made larger, those at the tuberosities smaller. This is shown by Fig. 1. This being done the model is varnished on all surfaces except that covered by the base-plate. When the varnish has dried the base-plate, and all parts of the model are coated liberally with fine French chalk applied with the end of the forefinger. Modeling compound is then softened in hot water and

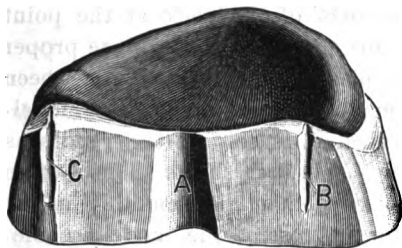


FIG. 1.

formed into a ball. This is placed over the wax base-plate on the model, and so manipulated with the fingers that the whole base-plate as well as much of the model is covered by it. This is shown by Fig. 2. When the modeling compound has hardened it is separated from the model, and the wax base-plate removed. Sometimes this will remain on the model, sometimes it will adhere to the modeling compound. In either case it is removed. The inlets of the modeling compound are cut out so as to afford an easy access to the face of the model. The face of the model is now rubbed over with French chalk and the excess dusted off with a soft badger tail brush or camel hair pencil, and the inner surface of the modeling compound mould (Fig. 3) treated in the same way. The object of thickening the base-plate at the median line as advised, is to afford a larger and easier access to the face of the model. This being done, the modeling compound mould is replaced on the model, as shown by Fig. 2, and with a piece of rag the whole is tightly wrapped, only leaving the inlets at the back part of the model exposed. Crown metal or fusible alloy, melting at no greater heat than 160° Far., is melted and poured into the median inlet. The other two inlets are only intended

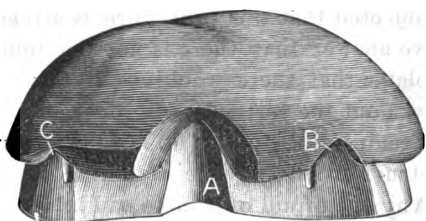


FIG. 2.

for the escape of air. When the metal is cold, the modeling compound mould is removed and the plate, formed of fusible alloy, is taken from the face of the model, which it intimately fits. If this plate be placed in the mouth, and the gum from which the impression was derived, was hard, and the impression perfect, the plate will

adhere so firmly that it will be removed with difficulty from the gums.

But suppose it should not adhere firmly, what are we to do? This may be due to an inordinately hard point forming a pivot, and may be overcome by relieving the inner part of the plate at the point where this pressure is greatest. If this should fail to produce proper adhesion, proceed as follows: The plaster impression having been saved, lay smoothly in it a piece of modeling compound. The modeling compound for this purpose is such as is sold at the depots as "modeling compound for base plates." It is in sheets about $\frac{1}{8}$ of an inch thick. A piece of this is softened and laid smoothly in the impression. By heating the plaster impression the modeling compound is made to adhere to it. The plaster impression, treated with

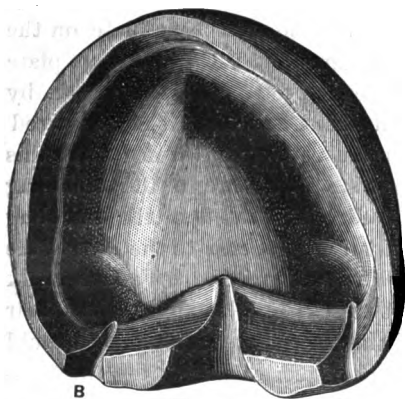


FIG. 3.

the coating of modeling compound as described, is then uniformly softened over the blaze of the spirit lamp on the bracket table, and quickly, while it is soft, conveyed again into the mouth, pressed firmly and steadily against the gums, and firmly and immovably held there until the compound hardens. From this new impression a new model is made, and another plate, which will not fail to adhere, made. Plates like these are admirable for taking "the bite,"

as they are ridged and adhere immovably to the gums. It may be objected that this procedure is attended with too much trouble; but we answer that there is not one-fourth the trouble of making these plates that there would be if the case were carried to completion without the certainty of proper adhesion when the work was finished. Besides, these plates do not take more than 30 or 40 minutes to construct from the time of taking the impression into the laboratory. Any one afraid of trouble had better give up the practice of Dentistry.

[TO BE CONTINUED.]

GOLDEN ANNIVERSARY OF DENTAL EDUCATION IN PHILADELPHIA.

A complete historical account of this movement is delayed on account of the sickness of the editor. This matter will be prepared for the March issue.

[TWENTY-FOURTH PAPER.]

LEADING QUESTIONS AND ANSWERS FOR DENTAL STUDENTS.

By THEODORE F. CHUPEIN, D.D.S., Philadelphia, Pa.

Q. How should a cavity of decay in a tooth be opened?

A. By using an instrument *larger* than the opening revealed by the decayed spot.

Q. Why?

A. Because, if an instrument of the same size or smaller than the opening be used, such an instrument would sink into or invade, to a greater or lesser depth, the softened decay beneath the enamel opening, which might be sufficient to cause the exposure of the nerve, or if not this, to cause sufficient pressure on it, as to either result in its death or lead to subsequent trouble.

Q. How then would you proceed?

A. By using, successively, larger to smaller burs or corundum points in the dental engine until the mouth or orifice of the cavity is sufficiently enlarged to permit the use of excavators, by which the softened dentine within the cavity is gradually peeled off.

Q. Is this the invariable rule?

A. No. Sometimes the decay is so extensive and the enamel so invaded by it, that to proceed with burs or corundum points would be slow work. In such cases the enamel *may be cleaned* with properly-shaped chisels, always guarding the pressure used to produce this cleanage by placing the thumb or fingers on the tooth being operated on, so as to avoid slipping. After the weak enamel is thus removed, the jagged edges left by the chisels may be made smooth with corundum points or discs in the dental engine.

Q. When the cavity is thus opened, is there any rule for the removal of the decay?

A. The decay should be removed from the sides of the cavity and from the cervical wall, and that which lies over the pulp peeled off afterwards.

Q. Why should it be done in this way?

A. Because, done in this manner, less pain will be inflicted, and if the removal of the decay which overlies the pulp should result in its exposure, such an exposure will be made almost painlessly.

Q. Have you any suggestions to give as to the manner of removing the decay?

A. The excavators should be very sharp and the blades thin. In form the blades should be rounding like a battle axe, not square like a chisel. The rounding form renders them easier to sharpen. Small,

sharp excavators inflict less pain than large, dull ones. An excavator should be used, in preparing a cavity, with a *draw cut* or a *scraping cut* from the pulp towards the orifice rather than with a push cut from the orifice toward the pulp.

Q. Why should you be careful in this respect ?

A. Firstly, so as to inflict as little pain as possible ; secondly, because when pain is inflicted it acts as an irritant to the pulp which may result detrimentally after the filling is inserted.

Q. Should deep or large cavities excite our suspicion even though no pain is experienced in the preparation of the cavity ?

A. It should. For although no actual exposure may have been made or ocularly revealed by the bleeding of the pulp, still there may have been so close an approach to it as to require precautions before the filling is inserted.

Q. What precautions should be taken in such cases ?

A. The cavity should be well bathed with carbolic acid, so that this may soak into the dentine. When the surplus is absorbed away a layer of phosphate cement should be flowed over the floor of the cavity, and when this hardens more of the same material, mixed thicker, used for filling the rest of the cavity.

Q. When no pain whatever is inflicted in the preparation of a large or deep cavity, what should be the procedure ?

A. The scraping or excavation should be continued until the nerve chamber is reached.

Q. What will be the result then ?

A. The pulp will either be found mummified within the chamber and roots, or there will be an oozing of pus from the pulp chamber when the opening is made, both of which showing a diseased condition.

Q. What should then be done ?

A. The nerve chamber should be freely opened as well as the roots and disinfectants, germicides and deodorizers used to remove all septic conditions.

Q. If the teeth were painless before the operation of filling was commenced, and painless during the excavation of the cavity why not fill them without going to the trouble of entering the pulp cavity and roots ?

A. Experience has proved that though these teeth may remain comfortable and painless for a long time, decay insiduously goes on until the whole tooth is destroyed ; so that if we wish to preserve what remains of such teeth we must use the most thorough means of doing this. Experience also teaches that to fill a tooth which is

painless under excavation as has been described is not the most thorough way of preserving what remains of it. Filled in this way it *sometimes* remains comfortable, but *often* it does not. Besides, it is unscientific to fill a tooth in this way, as we cover up a diseased condition which may sooner or later result to the patient's disadvantage.

Q. Are there any means of telling when the pulp is nearly exposed besides the evidences of pain given when the dentine is cut?

A. It has been proposed to place a small ball of cotton in the cavity and to bring heavy pressure on the cotton, with a blunt plugger, from various directions and to watch the patient to see if he winces under the ordeal. Others have proposed to take a very fine, well-tempered probe and to scratch the cavity longitudinally, at right angles and to observe if the patient flinches when this is done. The wincing or flinching under either experiment pointing to the near approach if not the exposure of the pulp.

Q. What is one of the most common evidences or indications of pulp exposure or pulp disturbance?

A. Irritability to cold.

Q. What should be done if the pulp should be accidentally exposed during excavation, when it is deemed best *not* to devitalize?

A. As soon as the bleeding from the pulp has ceased the cavity should be bathed with the tincture of Calendula. This may be used full strength, but some dentists advise its use diluted with one-quarter of water to three-quarters of the tincture.

Q. Do you recommend the filling of a tooth when the pulp has been thus exposed?

A. Many dentists advocate it and report successes in the operation, which is called "capping the pulp," and quite as many, if not more, equally reliable men seem to have no faith in the operation, so that it is difficult to reconcile the question. On the one hand it is argued that as a man is more perfect with two lungs, two arms or two legs than a man deprived of these organs, so must a tooth be a better and more perfect tooth when it has a nerve to supply it with blood, not being dependent for this supply through its cementum, and therefore it would seem best to resort to the operation before destroying the pulp. On the other hand the opponents of the operation take the ground that as the pulp is such a delicate organ and so sensitive, it will not tolerate a capping or any foreign substance next it. That it will surely die under any capping however delicately or skillfully applied, and, with this experience argue whether it is just to the patient to run the risk of its death beneath the capping, with the chances of abscess supervening from the dead pulp, all the suffering

connected with the formation and development of an abscess, as well as the changing of color in a tooth from the infiltration of septic matter in the dentinal tubuli. Thus, the question has as many adherents as opponents.

Q. Is there any recommendation as to the operation of capping?

A. It is recommended to cap the pulp *only* when the organ is in a perfectly healthy condition and when not the least inflammation of the organ is present. The successes reported point to persons of strong physique, hearty, robust and sanguine temperament.

Q. How is the operation performed?

A. The cavity is first bathed with creosote, the rubber dam having been applied. After this has cauterized the pulp at the point of exposure the surplus creosote is delicately absorbed away with small pieces of soft spunk or any other absorbent. A minute disc of thick tinfoil is made convex by forcing the rounded end of the handle of an excavator in it while it lays on a piece of soft wood, cork or erasing rubber. The concavity is filled with a paste made of creosote and powdered oxide of zinc, when it is delicately laid on the exposed pulp, permitting the larger circumference of the disc to rest on the sound dentine beyond the point of exposure. The remaining part of the cavity is filled with moderately soft oxy-phosphate of zinc filling material, and the rubber dam is not removed until this has hardened thoroughly. The remainder of the cavity may be filled *at the time* with amalgam or gold before removing the dam; or the dam may be removed and the cavity filled at a subsequent visit.

[TO BE CONTINUED.]

IN the October *Items*, Dr. L. P. Haskell speaks of the explosion of pyrozone in opening. I have had several tubes explode, and finally became disgusted, and asked the druggist to open them for me. The first tube (twenty-five per cent.) he packed in ice and left for an hour; then placed the tube inside two test tubes of different sizes and tried to open with a file. The result was an explosion of all the tubes. After trying three different times he gave it up. As I cannot get along without pyrozone, I concluded to try once more. I held the tube under running water a few minutes, then wrapped in a towel and ground the end off on a smooth corundum wheel on the lathe, and to my surprise it did not explode. I have always used this method since, thereby saving several dollars and a great deal of "wear and tear" on my nervous system.—F. L. BROWNE.



DR. JAMES E. GARRETSON.

We copy from the *International Dental Journal* for November, 1895, the obituary notice of this truly good man. All the attributes of charity, kindness and love ever found a place in his benignant heart. This tribute to his memory is the most fitting that could be recorded of him, unless it dwelt more on his many good deeds. We accord him all the honor, praise and glory which his many qualities and eminence so richly deserve.—[Ed.]

DR. JAMES E. GARRETSON, Dean of the Philadelphia College of Dental Surgery, died of enteritis, at his home, Landsdowne, near Philadelphia, Sunday, October 27, 1895.

The death of this distinguished surgeon and writer comes with a

shock to his many friends, and will bring a feeling of sorrow to a large circle in the medical and dental professions, in both of which he was equally prominent.

Dr. Garretson was born in Wilmington, Del., in October, 1828. He began the study of dentistry when quite young, and practised for a time in the neighborhood of Woodbury, N. J. He graduated in 1856 at the original Philadelphia College of Dental Surgery, the predecessor of the present Pennsylvania College of Dental Surgery. Shortly after graduation at this school he entered the University of Pennsylvania, and graduated as Doctor of Medicine after the usual course. He practised dentistry for some time subsequent to this, but his taste ran more to medicine and surgery, and he joined Dr. D. Hayes Agnew in his work at the Philadelphia School of Anatomy. It was this connection and his special studies that led him directly into a surgical practice which continued, with little interruption, for the remainder of his life.

It was through his efforts that a special branch of surgery was organized and became recognized as "oral surgery." He was subjected to some criticism at the time, as it was deemed by some to be an unnecessary division. This had its origin in a positive prejudice, at this period, against specialties in medicine. The question was frequently asked, "In what does oral surgery differ from general surgery?" Whether Dr. Garretson ever answered this query is not known to the writer, but he so impressed his individuality upon his work that oral surgery became a special branch of teaching, and has now been adopted as part of the curriculum of most of the leading dental colleges of the United States.

The history of his surgical work has yet to be written, but whoever prepares it will do injustice to Dr. Garretson if he fails to describe his kindness, tenderness, and ever-abiding sympathy with suffering, as well as the courage that enabled him to perform the most terrible operations with a skill not exceeded anywhere.

He was the first of the surgeons, we believe, to put into use the Bonwill dental engine in surgical operations, and through the aid of Dr. M. H. Cryer he has made this the most valuable of all surgical appliances.

It was the late Dr. Atkinson's often expressed conviction that "Dr. Garretson was the greatest oral surgeon of the world." Whether this were true or not, he had few if any superiors.

His work, "A System of Oral Surgery," is a monument of labor, and however much some may regard such a book as unnecessarily voluminous, it still remains the only one of its kind, and its issue

marked a decided advance in dental training. While the constant demand for new editions of this work absorbed much of his time, he found sufficient leisure in his busy life to write other books under the *non de plume* of John Darby. These include "Odd Hours of a Physician," "Brushland," "Nineteenth Century Sense," and "Man and His World." These added to his reputation as a thinker and philosophical writer.

His lectures on philosophical subjects, delivered at the College, will be remembered by those who heard them in their entirety, as containing some of the deepest thoughts, conveyed in a most entertaining manner and with the least possible attempt at superiority.

His love of the philosophy of all ages was deep and profound. His studies in these directions tinged all his writings and addresses, and led many to turn away from them as peculiar; but they were only peculiar in that they were out of the common ruts of thought. To those who appreciated something more than mere platitudes they touched a responsive chord. The writer of this need only refer, by way of illustration, to his splendid tribute to the work of Horace Wells, at the Memorial Celebration in Philadelphia.

We have not space to extend this notice beyond present limits. It would be difficult to express in words the great loss the death of Dr. Garretson is to his friends, his students, the dental profession, and to the world at large. He lived that the world might be benefited by his presence in it. He led the way for others to follow, and left an example worthy of our most earnest emulation.

In response to a frequently expressed wish his body was cremated. He leaves a wife and two daughters.

SELECTED ARTICLES.

ANSWERS TO QUESTIONS CONCERNING ANÆSTHETICS AND OBTUNDENTS.

Since the adjournment of the Columbian Dental Congress, I have received so many letters of inquiry of which the following questions are, in substance, given, concerning cocain pigment, etc., that I find it practically impossible to give personal answers. I ask my esteemed correspondents to accept answer here given as if to them personally addressed, and, I may add, that what I have given below, I have proven. During the week in which I have written this article I have twice operated for "imprisoned third molars." Cocain pigment and chloroform, as advised, rendered one operation "perfectly without

pain, but I knew all the while," the other attended with only slight pain, "But not much—no shock." Very few teeth should be extracted. Many roots should be saved and crowned. It is, however, necessary sometimes to remove teeth and roots, as it is sometimes needful to amputate limbs; both, when needed, should be done painlessly, by wise, skilled dentists and surgeons.

Q. 1. I understand you advocate painless dentistry. Is it possible and practicable?

A. Absolute painlessness in dental operations is scarcely attainable. Relative painlessness is possible, desirable, practicable, profitable to the operator, and appreciated by the patient.

Q. 2. If yes, 1st, What agent do you employ? 2d, What is the method you advise?

A. Avoid thrusting a searcher on an exposed pulp or sensitive dentine without an obtundent previously applied. Cocain and adjuvants for the superficial soft tissues, and chloroform to obtund dental fibrils, and those of deeper structures.

To prepare for a careful examination for pulp exposure and sensitive dentine, a wash, prepared as follows, is reliable:

COMPOUND LISTERIN OBTUNDENT.

R.—Sol. hyd. cocain (4 per cent.).....fl. oz. iij.
 Glycerin fl. 3 ij.
 Listerin ad.....fl. oz. iv. M.

Apply to gums and necks of teeth to remove all debris and mucus, with tooth-brush or with brush or sponge applicator; immediately wipe out deep cavities with absorbent cotton and moisten the cavities with "com. cocain pigment."

To prepare gingivæ and peridentium, to tolerate clamps, separators, gilling twine, scalers and pyorrheal blades, cleanse the neck of teeth and the gums with the compound listerin obtundent, or with pyrozone, 3 per cent. or less, then dry and apply cocain pigment, working it well along the necks of teeth into pockets and into gum borders; to operate (surgically) in and about the oral cavity, and to extract teeth and roots painlessly, the patient remaining conscious and retaining voluntary motion, cleanse the parts as directed, dry them, and apply the pigment (for extracting), and while waiting for it to anesthetize the parts, administer chloroform.

To drill, bur or grind sensitive dentine, open pulp chambers, amputate or extract live pulps painlessly, proceed precisely as directed above for extracting and operating surgically.

Painless extraction of teeth and oral surgery by local anæsthesia is

possible and practicable by hypodermic injection of cocain. The following formula gives a hypodermic mixture, safe and effective, from the use of which, so far, no injurious or untoward results have supervened. Painless amputation of the finger, painless excision of a portion of a rib, and numerous other operations of minor surgery, unattended by pain, attest its value:

COMPOUND STROPHANTHIN HYPODERMICA.

R.—Sulf. atropin.....gr. 1.2.
 Strophanthin.....gr. 1.5.
 Acid Carbolie (95 per cent.).....gr. v.
 Hydrochor. cocain grs. xx.
 Aq. dist.....q. s. fl. oz. i.

M. Sig.—Four to six drops, hypodermically, for local anæsthesia.

Q. Is there any soreness or sloughing after the use of the cocain pigment?

A. None.

Q. Is any special brand of cocain preferred?

A. If by "brand" is meant manufacture, I know of none especially to be preferred. No "brand" should be trusted unless the drug is in clean prisms, of the smaller rhombic system—crystals free from powder or dust.

Q. Is there nausea in the use of the pigment?

A. None.

Q. Is there any danger in using the pigment on extremely nervous persons, or those suffering from heart trouble?

A. Not the least. Care should be taken that none of the pigment reaches the stomach.

Q. Do you obtund sensitive dentine with the pigment by applying it in contact?

A. With but varied results and partial success. If the dentine is cleansed and dessicated, the pigment applied and evaporated by a blast of hot air, good results follow, especially if the soft tissues surrounding the tooth have been treated with the pigment.

Q. Is the pigment as effective as the 4 per cent. of cocain injected?

A. I think not; but there is great danger in hypodermic injection of any per cent. solution of cocain unguarded by some escharotic or coagulant. An injection will reach nerve fibrilla more quickly than any topical application.

Q. Is there any care required to prevent the deterioration of the pigment?

A. The last drop is as good as the first.

Q. Does the pigment act on abscessed teeth?

A. By its skillful use abscessed teeth and roots can be painlessly removed. Of course congestive tissues absorb less rapidly than those in a normal condition, hence in these cases the great value of chloroform with the pigment as an obtundent.

Q. Is there no danger from shock in operations during partial anæsthesia; by the chloroform and the pigment as you advise?

A. Not the slightest from shock caused by extraction, burring or cutting, consequent on the partial anæsthesia; but there is danger from shock in giving chloroform, ether or nitrous oxid, if avalanched on the peripheral nerves; and there is danger of shock in operations without anæsthesia, partial or general.

It perhaps is as well here as elsewhere to enlarge on this answer. I am aware that this answer is in flat contradiction to the teaching of scientists of Europe and America, and opposed to the consensus of opinion of experts(?) on this subject; nevertheless I modestly but unwaveringly maintain its correctness.

I assert that the first effect perceivable of an anæsthetic given as I advise, so gradually as not to irritate the nerves of the nose, throat and lungs, is on the ultimate fibrils of the sensory nerves. Any educated person can verify this by a trial on himself. Long before the brain becomes clouded, distinct sensations can be noticed in the extremities, especially at finger-tips and toe-ends, and long before consciousness and volition are held in abeyance by any true anæsthetic, capacity to suffer pain is abridged. If this be demonstrably true, and I re-assert it, then what logic can support the proposition that partial anæsthesia (insensibility) augments the consequence of pain shock? Every tyro in anæsthetics knows that inhalations of chloroform, ether, or nitrous oxid will suspend for the time the "aching" of the felon, carbuncle, or phlegmon, and mitigate the fiercer anguish of local neuralgias, and angina pectoris even. What senseless sophistry then to argue that an obtunding of the fibrils through which the knife passes increases their ability to alarm the brain and depress ganglionic force. To my mind the fact is, when deaths occur, as they have too often in the earlier stage of operations, shock from the anæsthetic does what the sand-bag in the hand of a footpad accomplishes, and often more speedily. The shock is from the chloroform, and not the lancet, bistoury, or catling. It is with some pride and a great de-

gree of satisfaction that in the earlier use of chloroform and, later, cocaine and chloroform, for more than twenty-five years, not a single accident has marred my faith in the safety and advisability of anæsthetics in dental as well as surgical practice; but I wish to emphasize the caution here given, that shock must be avoided in giving the anæsthetic. If my way is not followed, then some other way should be chosen equally gradual, and that will admit a large amount of air with the vaporized drug. I will not be responsible if my directions and caution are not heeded.

Q. Is the pigment safe as a hypodermic?

A. Of its efficiency and safety, I have not a doubt, but I advise in preference the compound strophanthin hypodermica. As a hypodermic, it is more readily absorbed by the surrounding tissues, has been proven safe and forceful, and is less expensive.

Q. What care should be used, and what dangers attend hypodermic injections of cocaine?

A. 1st. Never thrust the needle into or through a blood vessel of any size. Thrombosis or embolism would be the least of the sequela likely to supervene.

2d. Never pierce the trunk of a nerve of any size sufficient to be transixed or severed by the needle. Glosso-pharyngeal, lingual, or facial paralysis is liable to follow, all of which have come under my notice, subsequent on operations by careless dentists.

3d. Under no circumstances throw a solution of cocaine of any strength among cellular tissues, unless combined with coagulants, or escharotics of sufficient strength to circumscribe and localize the injection, and bar it from the systemic circulation.

Q. Is there not danger of the patient and operator becoming victims of using chloroform and cocaine as a "habit?"

A. To the patient not the slightest; cocaine uncombined is bitter to the taste and not fascinating; combined as advised by me, its pungency and viscosity render it anything but agreeable to taste or in effect.

To the dentist of to-day, with glowing records of experiments before his eyes, its toxic dangers stake-lighted, bell-buoyed and fog-horned, if there is danger to him, then dementia and parrallaxis cannot come too soon; such a "professional" were better in an asylum than free—better dead than living. I have more sympathy for suffering clients than for such idiotic practitioners.—A. C. HEWETT, M.D., Chicago, Ill., in *Review*.

METHODS OF DESTROYING DENTAL PULPS.*

The many articles written and the frequent discussions of this subject are evidences of universal interest. With but few exceptions, all are on the use of arsenic for this purpose, as since its introduction nearly sixty years ago by Dr. Spooner, hardly anything has been found to take its place. The many theories advanced as to the best method of applying it, and the almost universal expression of unsatisfactory results, show the necessity of something better for this purpose. The application of arsenic in a tooth causes pain more or less severe, continuing from one to several hours. How to obviate this pain is an important question. One advances a theory why arsenic should cause pain and gives directions for making the application, affirming that no pain will result. Another follows these directions, but with an entirely different experience. Then to harmonize the different experiences, we hear this phrase often repeated: "Arsenic works differently in different localities." My experience, like that of many others, has been so unsatisfactory, that I question the statement that arsenic always works satisfactorily and painlessly; and so I have attempted many experiments. In my experience if arsenic was placed in a tooth when there was no exposure of the pulp, pain always resulted; when applied to an exposed pulp, I have sometimes succeeded in devitalizing it without causing pain. With many, this is a light, steady, annoying pain, lasting for several hours and exceedingly exasperating; and with others a severe, throbbing pain, almost unbearable, but not continuing more than an hour or two. One writer has said: "the pain resulting from the application of arsenic is evidence that the arsenic is doing its work, and when the pain has been severe we are sure to find the pulp devitalized in a few hours; that if there is no pain, it will take days or weeks for the pulp to die." So he announces as a rule to follow, that the length of time arsenic should be left in a tooth must be governed by the amount and severity of the pain. Another serious objection against its use is that it frequently excites more or less inflammation of the pericementum. The recent experiments of Dr. Kirk with coagulants in pulp-canals demonstrate very clearly that whatever care we may take in sealing medicines in the cavity of a tooth, we cannot prevent their exerting more or less influence on the pericementum. From my experience in the use of arsenic I have deduced a few rules. First, to always make the application in the morning, to allow the patient an opportunity to have it removed in the afternoon if the pain is severe, instead of compelling

* Read before the New Jersey State Dental Society, July 18, 1894.

him to endure the pain during the night. Second, to always make the application to an exposed pulp. I use a piece of blotting paper, which is saturated with creosote. On this is placed the least possible amount of arsenic, then a little powdered cocain, and this I cover with cotton and sandarac varnish or wax, using care not to have any pressure on the pulp. This I leave in the tooth from two to three days. Frequently cases present with severe pulpitis, but no exposure. In such cases as these, many advocate saving the pulp, relieving the pain by reducing the inflammation, and then filling the cavity. My experience has been that wherever there has been odontalgia arising from any disturbance of the pulp, every attempt to save the pulp has been a failure. In these cases to apply the arsenic without first exposing the pulp subjects the patient to an ordeal to which I would not submit myself. My personal experience of suffering from applications has stimulated my search for something better. To expose the pulp in these cases used to be a painful operation, but practiced because I believed the temporary pain obviated a long period of suffering.

The process known as "knocking out" answers very well in certain cases, and these are in the anterior teeth having single pulp canals and the tooth well cut away, allowing free access to the pulp. A sharp stick is shaped to go the length of the canal, and with a mallet, by one blow, is driven into the pulp. This method is sometimes a failure as a result of miscalculation of the canal, thus necessitating a second application of the stick, to which the patient is apt to interpose serious objections.

Carbolic acid is sometimes used, applying the crystals to the exposed pulp, cauterizing the surface, then removing the cauterized parts, and following with another application of the acid, continuing this way removing the pulp in parts; a very slow, tedious operation for both patient and operator, and attended with more or less pain. A method hardly to be advised, as it offers no advantages over the "knocking out" process.

Cocain is advocated by a few for the purpose of removing pulps, and as right methods for its use become better known, the efforts will be more successful. Cocain as a local anesthetic was first brought to notice in this country by the publication in the *Medical Record* of October 11, 1884, of a letter from Dr. Noyes, of New York, then studying in Germany. On November 13th, following, I read a paper on "Hydrochlorate of Cocain," before the Connecticut Valley Dental Society, one sentence of which I quote: "What has already been accomplished with cocain leads us to believe that by its use we can

banish arsenic from our practice, for if placed on an exposed pulp it should so benumb it as to allow its removal to be a painless operation." Ten years have almost passed, and we are just beginning to realize that cocain can be successfully used in place of arsenic for devitalizing pulps. The first few months after the publication of the above-mentioned letter, many experiments were made with this drug on the pulp. Because of its complete success as a local anæsthetic when applied to the eye we thought it would have an equal effect on the pulp, but our experiments were not a success in the line we had hoped. While we found it did exert an influence, it was not sufficient to allow of the removal of the pulp or of the insertion of an instrument into it. Since then only a few have continued their experiments, and only within the past year has a successful method been brought before the profession. Occasionally items have appeared in dental journals like the following: "To remove the pulp, apply crystals of cocain and allow to stand ten minutes, when the pulp can be easily removed." Any one who has had much experience with cocain will give such items very little credence. When one reports a painless operation on the pulp, he wants to bear in mind that there are always two sides to a report. When an instrument is applied to a pulp it makes a great deal of difference which end of the instrument you hear the report from.

A little over three years ago I commenced a series of experiments with cocain, using the hypodermic syringe and injecting the solution (a four per cent. I find sufficient) into the pulp. Emboldened by success with the first case attempted, I have continued my experiments, and now I do not hesitate to attempt its use in every case. During the past year I have only resorted to arsenic in four cases, the reasons for which I will give later. My method in detail is as follows: If possible I apply the dam, as it is necessary to keep the cavity dry until the pulp has been injected. After drying out the cavity I uncover the pulp, and this is done in an almost painless manner by first blowing on warm air, then an application of a saturated solution of cocain in alcohol and ether or chloroform equal parts, allowing this to remain about thirty seconds, then another application of warm air, continuing in this way till sensitiveness is wholly obtunded. As soon as the pulp is exposed,—and I only desire to expose a spot as large as the point of my hypodermic needle—I apply crystals of cocain and moisten with campho-phenique. After standing thirty seconds I apply warm air for a few seconds, and then attempt to work the crystals into the pulp. In from two to ten minutes I am able to introduce the needle of the syringe without pain. With a quick push I force the

piston down and at the same time force the needle into the pulp, and it is instantly benumbed.

I immediately with burs proceed to open up the pulp-chamber and remove the body of the pulp. As I reach the canals, I occasionally find a little sensitiveness, when I have to inject each canal. I then remove the dam, and proceed, with one exception, as I always do in treating a pulpless tooth. First, I have the patient rinse the mouth with a solution of hydonaphthol; dry out the cavity and flood it with hydrogen peroxid, and with a Gates Glidden drill ream out the canals, at the same time the drills remove the pulp tissue, and working the drill in such a manner that the peroxid is always in advance of the instrument. When the canals are thoroughly cleansed I wipe them out, and this is the exception noted above—I pump into each canal a saturated solution of zinc chlorid or carbolic acid, preferring the former. I do this to destroy and render harmless the minute remnant of pulp which it is impossible to remove from the constricted portion at the end of each root. If this precaution is not taken there will be more or less pain after the root is filled. As soon as the influence of the cocain has passed, sensitiveness returns to the remnant end, and if the canal is filled as thoroughly as it should be, there will be pressure at the end of the canal, causing this pain, which will not subside till the filling is removed. I allow the zinc solution to remain in the canals while I am preparing the gutta-percha points; then I again wipe out the canals and pump a saturated solution of iodoform in eucalyptol, and immediately press in the gutta-percha points to the end of each canal, and proceed to fill the cavity.

When patients come in complaining of toothache, and the pulp is still alive, if I am able to give ten to fifteen minutes, I proceed at once to remove the pulp and fill the canals. If there is tenderness on pressure of the tooth, showing that inflammation has extended to the pericementum, I give the patient, as I dismiss him, a few capsicum plasters to apply to the gum over the tooth. When I cannot give any time to the patient, I wash out the cavity with warm water, moisten a pellet of cotton in creosote and oil of cloves,—equal parts,—sprinkle on a few crystals of cocain and seal in the cavity. This generally gives instant relief, and I endeavor to attend to the case within the next two days.

The question will be asked: Is this method of removing pulps a painless one? I answer, Yes and No. In the majority of cases it is painless, but with some there is a little pain. In the four cases referred to above I was not able, after trying for fifteen minutes, to en-

ter the pulp—three of these teeth were inferior third molars—so I resorted to arsenic.

The pulp of a tooth is composed of blood-vessels and nerves. It has a special sensory function, and while it does not have the tactile sense, it has the sensory function highly developed—as much, if not more so, than any other organ in the body. While to a touch it responds quickly with a shock of pain, it is seldom that a person can correctly locate the tooth from which the pain proceeds, thus showing the decided difference between the tactile sense and the sense of pain. Words fail to describe the intense suffering produced when an exposed pulp is only slightly touched, therefore in all operations on the pulp the operator should certainly bear this in mind. To remove pulps in the manner just described requires judgment and patience; needless suffering will ensue in any attempt to hurry. Within the past two years I have removed nearly one hundred and fifty pulps by this method, and only in one case did I have to remove the filling in the canal, in which instance it was in the left superior cuspid of the writer, and this because I neglected to apply the zinc chlorid after reaming out the canal. Naturally, my personal experience of the entire absence of pain while injecting and removing the pulp from this tooth carries more weight, in my own mind, as to the painlessness of the operation, than the testimony of all the other patients operated on.—GEO. A. MAXFIELD, D. D. S., Holyoke, Mass., in *Atlanta Dental Journal*.

THE BREATH. *

Impure breath is liable to occur at any and all periods of life. It is found in a great variety of phases—from the slightest perceptible deviation from the normal state to that in which it is loaded with a large amount and great variety of excrementitious matter from various sources, perceived sometimes even by the sense of taste, at least so far as the patient is concerned, but more especially by the olfactories, making such an impression through this channel as to produce nausea, and, indeed, the infection of contagious diseases may be carried from one person to another by the breath. A vitiated breath as a means of conveying the seeds of diseases is not duly appreciated by the public, and perhaps not so fully as it ought to be by the majority of physicians.

We involuntarily turn away from the fetid breath of even our best friends. One may be beautiful in face and form, attractive in manner

*Abstract of Paper read at Ohio State Dental Society, December, 1892.

and fascinating in conversation, and possess personal magnetism that may be well-nigh irresistible, and yet an offensive breath will neutralize or destroy the influence or power of all these qualities.

In no other relation is this subject of greater moment than that existing between the dentist and his patient.

The degree of offensiveness is modified by the acuteness of the olfactories of one or both parties, together with the conditions of the exhalations, and the course or sources of the fetid breath.

If the dentist is subjected for a considerable time to this condition of things his general health may become affected in a more or less marked degree, according to his own susceptibility, and to the degree of vitiation of the air he is compelled to inhale. There can hardly be a doubt but what many suffer very greatly from this cause; and though one may not suffer much, or apparently at all in this respect, yet a sense of discomfort and uneasiness is always experienced by the dentist in his professional work when subjected to a vitiated atmosphere, and this will necessarily interfere somewhat with the thoroughness of his operations. It is a serious question whether the dentist ought ever to subject himself to such embarrassments, at least for more than a few minutes at a time. It certainly would be for the welfare and interest of both the patient and the dentist, were the former to be put upon proper treatment before having extended operations made upon the teeth.

The offensive breath of the operator is a matter of special interest to the patient as well as to himself. The dentist has no right to make himself, or even to be a nuisance in any respect to those whom he serves, and if he has any just appreciation of the fitness of things, he will see to it that his presence in every respect is rendered as little objectionable as possible.

The patient is not likely to suffer ill-health or prolonged discomfort from the fetid breath of the dentist and, indeed, many of less acute sensibility, will be inclined by and by, to seek more acceptable service.

The dentist should be able at all times to discriminate in regard to the character of his own breath; it may sometimes be a necessity to submit to this annoyance from others, but he should see to it that he never imposes upon his patients in this way. I have known superior operators—persons of gentlemanly deportment in every other respect, whose breath was in such a condition as to disgust all those who came within its influence; indeed, I have known some such who were compelled to abandon the practice of dentistry.

There are some instances in which this affection seems uncontroll-

able, but in the great majority of cases it is amenable to proper treatment, and can either be modified, masked, or wholly eradicated. It can in many instances be wholly, and by proper care, permanently relieved. In others the change is only of a temporary character, irrespective of any treatment that may be employed.

Derangement of the stomach, alimentary tract, kidneys, liver or skin is almost certain to result in more or less marked change of the breath, from the fact that in part, at least, the waste that thus fails to be removed is thrown into the lungs, and will, in many instances, produce a markedly offensive breath. But in some instances the breath may be contaminated with excrementitious matter that possesses little or no offensive odor. The defective function of the digestive apparatus is, in nearly all cases, a source of fetid breath. Disease of the lungs of almost every variety is attended with more or less vitiation of the breath.

Of the local sources of this difficulty there are many, and of these there may be said to be two classes, the one embracing all the local disorders that many contaminate the breath after it leaves the lungs; this will embrace the various forms of diseases found in the throat, mouth and nose. Diphtheria, scarlet fever, tonsillitis, and perhaps some other affections, though affecting the entire system, possess a local manifestation that results in greatly vitiated breath.

The various catarrhal affections that are found in the nose, the throat and mouth, in all cases more or less affect the breath, ranging all the way from the very mild, almost imperceptible, change to an intolerably disgusting degree. This affection should be well studied by the dentist, in order that he may be able to give his patient some, if not permanent relief, and that he may protect himself so far as he may against an intensely annoying and offensive condition.

Diseases of the gum and mucous membrane of the jaws are often the occasion of this offensive condition. This will result, sometimes, from a vitiated exudate from the mucous membrane, or it may occur, as is frequently the case, from a discharge from the margins of the gums, and from the sockets of the teeth.

Necrosis and sloughing of the bony tissues of the sockets nearly always produce a very offensive condition.

The discharge from alveolar abscess is oftentimes so vitiated as to load the breath which passes out of the mouth with an exceedingly offensive odor.

Decayed teeth are charged, especially by various medical writers, as a very frequent cause of offensive breath. This is true not only of physicians, but to a greater extent, perhaps, of the laity. There is

not, however, as much in this as is usually attributed to it. Occasionally cases are presented in which an exceedingly foul breath is wholly attributed to one small innocent cavity of decay in the grinding surface of a molar tooth. Were all other causes of offensive breath eliminated, than that which comes directly from the decay of the teeth, there would be, in the aggregate, an immense improvement.

Another fruitful source of offensive odors of the oral cavity is found in the presence of foreign substances or matter in the mouth in the shape of soft salivary calculus, accumulation of food, and a glutinated mucous deposited upon the teeth or the artificial dentures undergoing decomposition, and necessarily throwing off an effluvia that will be mixed with the breath. The saliva and mucous, mixed thus with foreign substance, and retained for an undue time in the mouth, will undergo such change as to present a very offensive condition. Now as to these extraneous causes of the affection under consideration, it is not difficult for the educated patient to determine what should be done; simply purification of the oral cavity in the most thorough manner by the entire removal of all offensive material, and after this the intelligent use of disinfectants upon the teeth, mucous membrane and dental plates, if they are in the mouth.

With a large variety of disinfectants, antiseptics, cleansing materials and methods there is no difficulty in rendering almost every such case free from the objectionable condition, for a time at least sufficient for operations.

A great many formulas have been given for the correction of offensive breath; the suggestions made for the use of these, however, in the majority of cases, are upon a false basis; with many of them it is only the substitution of one odor for another, or the mixing of two offensive conditions, and producing a third that is, perhaps, temporarily more tolerable than either of the others.

In treatment here, however, the aim should be, as in all other medical treatment, to attain the most permanent results; that, doubtless, is the true theory of all medical and surgical practice.

Temporizing should never be employed when something better can be attained.

It is very desirable that the profession should give more attention to this subject than hitherto. In our literature very little will be found upon this subject, and in all medical literature so far as I have been able to examine, only a fugitive reference to it has been here and there made; and I may here refer those who have not investigated the subject to a little work entitled, "The Breath and the Disorders which give it a Fetid Odor," by Dr. Joseph W. Howe, the third

edition of which was issued in 1885, and a paper published in the *Dental Register*, by Dr. D. C. Hawxhurst, Vol. 27, page 104.—J. TAFT, M.D., D.D.S., in *Ohio Dental Journal*.

COCAIN.

In my early experience with cocain as a dental anæsthetic, I, like every one else, encountered difficulties, or embarrassing situations to say the least, which tempted me to forego the use of this valuable drug as a safe and practical local anæsthetic. Yet its satisfactory obtundent qualities left no choice but to make use of it, though such use seemed to be attended with a considerable measure of hazard. Like many others, who have tasted of its beneficial action, I began experimenting with the drug to make combinations which would render its use more practicable and safe. I began with a 6 per cent. solution for hypodermic use, on the base that one grain could be safely used as a dose. I was not long in discovering that either the dose or concentration was entirely too high, and I now know both were. I experimented with various solutions, and finally came to the conclusion that for hypodermic injections a 2 per cent. solution in water was sufficiently saturated for any purpose, even for use in anæsthetizing pulps, and generally where it can be used, a 1 per cent. solution would accomplish definite and satisfactory results. I have even secured very satisfactory anæsthesia, for extracting a tooth, with a solution of the strength of $\frac{1}{2}$ of 1 per cent. The doses of cocain I have gradually reduced from 1 grain hypodermically to from $\frac{1}{8}$ to $\frac{1}{2}$ gr.

The great objection to cocain lies in its tendency to induce hysteria, when given in small doses, caused by its stimulant effect on the nervous system; also its depressing action on the respiration and heart when used in excessive doses. The tendency to hysteria and respiratory difficulties are the most important complications to consider, because they occur when least expected and sometimes with small doses, while the depressing heart effects only occur in peculiarly weak conditions of this organ, or as secondary to the respiratory difficulties, or because of excessive dosage.

My first experiments to control this nervous excitement were with the standard narcotics, morphin and chloral. I soon found that many persons were highly susceptible to the use of morphin, and that chloral was objectionable because of its bulk and its excessive irritating character when injected into the soft tissues, causing sloughing of the tissues. The experiments of Dr. Pruyne convinced me that morphin was the most accessible drug to control this exciting

effect, and on looking it up I found that atropin was morphin's great antagonist, especially against its poisonous and nauseating effects. I therefore began using a combination of cocain, morphin and atropin, and soon found that I had a satisfactorily corrected formula, and that the drugs seemed to harmonize therapeutically in producing a more powerful local anæsthesia, and that systemic disturbances were very rare with proper doses. This combination I am now using as a local obtundent with good results. I use sterilized water to make the solution, and to prevent possible decomposition make the solution fresh daily or as needed for use. The formula I use is as follows :

R. Cocain, ... $\frac{1}{2}$ gr.
 Sulphate of morphin, ... $\frac{1}{8}$ gr.
 Sulphate of atropin, ... $\frac{1}{100}$ gr.
 Sterilized water, ... xxx. gts.

Mix and inject hypoder. gts., v to xv.

For convenience I have had the cocain, morphin and atropin made into soluble tablets by Parke, Davis & Co., of Detroit, and in this way solutions of any strength desired may be quickly and accurately made with little or no inconvenience. The sterilized water I use is distilled water, containing from 8 to 10 per cent. of listerin or euthymol to keep it sterile. If you desire to make a 2 per cent. solution, all that is necessary is to dissolve one of the tablets in 25 minims of water. A 1 per cent. solution can be made by dissolving one tablet in twice this quantity of water, or 50 minims. A 4 per cent. solution can be made either by reducing the water one-half or adding another tablet to the 25 minims, etc., etc.

The advantage of this method of making solutions is that you can always have pure, clean solutions, and the preparations are portable in small compass. The drugs used in the tablets are the purest that can be had, and the firm assure me they are especially careful in filling all such orders. Another advantage is that other correctives or adjuvants may be added to this formula when the solutions are made.

In my opinion the manner of using cocain in dental practice has much to do with the disrepute into which this most valuable drug has fallen. It is an excessively poisonous substance and must be used with the greatest caution and care. There is a tolerably well marked outline beyond which clinical experience has demonstrated we cannot go without hazard. Not more than one-half grain, nor in stronger than 2 per cent. solution, should ever be used at one sitting as a hypodermic injection. It should be used with a clean syringe in perfect order, and injected only a little faster than the tissue will

absorb it. Excessive pressure on the syringe will cause irritant results and introduce more of the drug than is necessary to produce the desired effects. All excess or overflow should be prevented or absorbed before it comes into contact with the tongue, as it will be quickly absorbed by the tongue, or if swallowed produce paralysis of the pharyngeal and laryngeal muscles, and induce dyspnea and develop hysterical symptoms. The best systemic fortifier is coffee or food.—Dr. N. S. Hoff, Ann Harbor, Mich., in *Ohio Journal*.

THE PRACTICAL PLACE.

COCAIN ANÆSTHESIA RENDERED HARMLESS BY THE ADDITION OF TRINITRIN.

The author proposes the following formula, in which trinitrin is introduced, with the effect of preventing the anemia of the brain:

R.—Cocain muriat centigrms. xx.
 Alcohol sol. of trinitrin, 1 per ct.gtt. x.
 Distilled water.....grms. x.

Each cubic centimeter contains two centigrams of cocain and one drop of the trinitrin solution. Gauthier has used this formula for two years with great satisfaction.—*Revue gen. de Clin. et de Ther.*

RELIEF OF PAIN FROM SUDDENLY EXPOSED PULP.

Dry the surface of the pulp, and paint with collodion.—A. W. HARLAN.

TO PREVENT plaster of Paris from sticking to the palatine surface of a vulcanite plate, paint or brush the model in the flask well with soap suds.—*Zahntechnische Reform*.

TO REMOVE REMNANTS OF PUTRESCENT TISSUE IN ROOT CANALS.

Force trichloroacetic acid into the canals. It destroys all tissues and purifies in a few moments' time.—C. N. PEIRCE.

COCAIN dissolved in chloroform, one grain to one-eighth ounce of chloroform, is good to extirpate pulps without pain.

EXTRACTING TEETH BY ELECTRICITY.

Trials have been made at London with a new apparatus for the extraction of teeth by electricity. It consists of an induction cell of extremely fine wire, having an interrupter that can vibrate at the rate of 450 times a second. The patient sits in the traditional armchair,

and takes the negative electrode in his left hand and the positive in the right. At this moment the operator turns on a current whose intensity is gradually increased till it has attained the utmost limit the patient can support. The extractor is then put in circuit and fastened on the tooth, which, under the action of the vibration is loosened at once. The operation is performed very quickly, and the patient feels no other sensation than the pricking produced in the hands and forearms by the current.—*Dental Digest*.

DR. MITCHELL says: "A heated instrument applied to the tooth will generally settle the question, whether the nerve be dead or alive."

D. GENESE ON AN EFFECTIVE OBTUNDENT.

At the First District Dental Society of New York Dr. Genese treated and excavated a lower first molar, capping and filling at the same time. The cavity was large and the tooth hypersensitive. Dr. Genese demonstrated the obtundent effect in this case of his preparation of carbolate of cocain, the formula of which is:

R—Cocain, 4 per cent. ;
Carb. acid, 50 per cent. ;
Benzoin, gum, 50 per cent. ;

by the aid of which he excavated the tooth painlessly.—*Extract Cosmos*.

AN EASY AND SAFE METHOD OF REMOVING PULP AFTER DEVITALIZATION.

Take a watchmaker's pivot broach, known as the Swiss broach, anneal it, wind a few shreds of cotton around the end, push it into the pulp cavity and slowly twist it. As the cotton is wound around the broach, the pulp will cling to the cotton, and thus will be taken out whole, without the danger of breakage usually accompanying the use of barbed broaches. It is not necessary to carry the instrument to the end of the root, but some cotton should be forced ahead of the broach before twisting it.—*Dental Digest*.

ADVERTISING DENTISTS.

The young graduate who is just entering on the activities of his professional life, and who would be so ungrateful as to repudiate the examples and teaching given by his Alma Mater, would be considered unworthy of the school that created him, yet our dental colleges resort to methods of obtaining clinics which would give cause for expulsion

of a member of a dental society. I observed while at school that to obtain patients for its clinics my professors advertised in the dailies of the city and weeklies of surrounding towns, that "The Dental Clinic will be open in the afternoon of each day, and open all day Saturday. Prices of work to cover cost of material." The response was flattering to the advertisers. Students are not only silently taught to advertise, but they are taught to use dishonesty in it also, for the schools charge for their clinic work from five to ten times the value of the materials. A dental college is a great professional institution. We must expect its examples as well as its precepts. That which is professional and ethical in a great institution of learning, ought to be entirely admissible in those who are turned with honors from its doors.—G. G. BROCK.

A SEPARATING MEDIUM THAT IMPARTS A SMOOTH, GLOSSY SURFACE TO YOUR PLASTER.

Coat impression with very thin shellac varnish, just enough to color the plaster. Then coat with a varnish made by dissolving gum sandarach 3 parts, gum elemi 1 part, in pure alcohol. It must be thin enough not to form bubbles when applied with soft brush.

TWO USEFUL IDEAS IN PROSTHETIC DENTISTRY.

The first is a combination of gold and vulcanite for bridges. Make and place in position gold shells for the teeth that serve as abutments; bring them away in an impression, from which make a model in sand and plaster. Connect the shells with a long bar of platinum and iridium to give horizontal strength and afford attachment for the rubber. Place moulding composition about the bar and adapt it to the gum while soft, directing the patient to close the teeth upon it for a bite. Adjust suitable vulcanite teeth and finish by usual process. It is often not necessary to take a bite, but simply wax the teeth to the bar and arrange in the teeth for articulation. The rubber can also be cut away so as not to rest on the gums, so that it will not be necessary to get an impression or make a model of the gum. There are no crevices for the collection of fluids and food; it offers greater resistance to the strain of mastication than soldered teeth. There are many modifications of this idea possible; two bars can be soldered in and swaged gold grinding faces vulcanized in; fill in with solder, catching some platina pins in solder for attachments; wax on and bite into adjustment. If the teeth for abutment have long crowns and small necks extend the gold shell only to knuckle and thus avoid

cutting away the enamel to get straight lines, removing the grinding surface to admit the thickness of gold in articulation. Extend the end of the bar past the shells for posterior teeth. In a case of inserting the two superior laterals, collars were cemented to the canines connected by a bar across the lingual surface of the centrals, with the laterals backed and soldered to the bar. A bar thus attached can be utilized in cases of regulating.—*The Ohio Dental Journal*.

CHLOROFORM—HOW TO GIVE IT.

Chloroform may be given as safely as ether, if the following rules are adhered to:

1. The stomach should contain no food, and a very small quantity of liquid.
2. Place the head a little lower than the trunk.
3. Have no tight clothing about the patient.
4. The anæsthetic should be chloroform (Squibb's), 70 per cent. alcohol, 30 per cent. by volume.
5. A hypodermic of morphine sulph. gr. $\frac{1}{4}$, and atropia sulph. gr. $\frac{1}{16}$, should be given a half hour before administering the chloroform.
6. The first inhalation of the vapor should be well diluted with air, and very gradually given.
7. A teaspoonful of aromatic spirits of ammonia should be given in a half ounce of whiskey or brandy by the stomach.
8. A starched towel folded in the shape of a cone, the apex open, should be used in administering the chloroform; this allows the air to enter freely.
9. The pulse and reflex of the eye should be closely watched, and the towel cone removed from time to time when indicated.

The physiological and therapeutic effects of the drug readily suggest the reason for these precautions, hence I shall not enter into a discussion upon the subject. I have never had a death from chloroform in an experience of five years.—D. J. SPOTSWOOD, in *International Journal of Surgery*.

CLEANING THE TEETH.

A two per cent. aqueous solution trichloroacetic acid to moisten the pumice is perfectly harmless. I have used it in my practice for some time and find it far superior to tincture iodine for removing the "green stain" on children's teeth.—W. H. JONES, D.D.S., Fultonville, N. Y.

MUSK DENTIFRICE.

R.—Camphorated chalk	2 oz.
White castile soap	3 drms.
Powdered orris root	6 “
Bicarbonate of soda... ..	3 “
Grain musk.....	2 grs.

—*British Journal of Dental Science.*

SOME LABORATORY HINTS.

Dr. G. B. SNOW, Buffalo, states in an article in the *Dental Cosmos*, that “ Sulphate of potash is often added to the plaster to make it set more quickly ; but I do not approve of the practice, as I do not believe the plaster is as hard with this addition as without. It may be also observed that there is little or nothing gained by using very little water in the plaster. Enough may be used so that the mixture will flow readily, and when set the mass will be as hard as though less water were used.

“ I believe in allowing plenty of time for the plaster to become thoroughly hardened before vulcanizing, and I believe that the darkening of the joints, when section teeth are used, is in some instances, partially at least, owing to the undue hurry of the dentist to get the case into the vulcanizer.

“ Before packing, the face of the model is either covered with tin foil, or treated with collodion or liquid sillex. The former is cemented to the model with thick shellac varnish, and if afterwards rubbed with soap, it is quite readily peeled from the rubber. Tin foil, such as is used for filling teeth, is used for this purpose, and if it should stick to the rubber it can be dissolved by immersing the unfinished plate in a bath of hydrochloric acid for a short time. The action is hastened by the addition of a small quantity of nitric acid.

“ Collodion is sold at the dental depots under the name of ethereal varnish, and at an extravagant price. Any photographer can furnish plain collodion, which will answer the purpose equally well, and for less money. This is painted on to the surface of the plaster before packing the mold.

“ Liquid sillex, or soluble glass, is quite largely used for coating the mold, and serves an excellent purpose, but it requires some precautions in its use to attain the best results. First, the surface of the plaster must be clean, so that it will freely absorb the sillex when applied. If it has been oiled, or if wax has been melted into it, the sillex will not be absorbed, and though it may be of some benefit, will

not be fully successful. Secondly, the silix must be quite thin, and should be diluted by the free addition of boiling water. It is well to have a second vial into which a small quantity can be poured and diluted for use. It must be kept free from fragments of plaster or other dirt, as it is easily decomposed. Thirdly, it should not be applied until a very short time before the mold is to be packed and vulcanized. After a few hours the silix is decomposed by the action of the plaster upon it, and a part, at least, of its good effects will be lost."

IN making full sets of teeth I nearly always leave off the first bicuspid, so as to throw the molars further forward. Better use large jaw teeth and fewer of them. If the first bicuspid is needed to fill the arch, put it behind the second molar. Especially in lower sets I want large molars, so that in chewing there can be more latitude for grinding instead of mashing of food. And why in the dickens can't our teeth manufacturers be impressed that cuspids should be made more prominent so as to look more natural?—J. W. GREENE.

MEDICINE AND DENTISTRY.

Quite recently a lady called on us with the request to have a small amalgam filling removed. It was the only alloy filling she had, and was in good condition. She had been sent by her physician, who claimed he could not cure a throat affection, from which she was suffering, as long as the filling was retained.

Our literature is replete with authentic reports of such cases, but an excellent illustration of the point in hand, one that has never been published, we take from the practice of Professor Peirce. A well-known neurologist had under his care a lad suffering from chorea. The case was presented to Dr. Peirce, who, on examination, found several persistent deciduous teeth, interfering with the normal eruption of the bicuspid, and these at his suggestion were removed, and within a few days the distressing symptoms disappeared. Under the care of the same was a girl subject to attacks of epilepsy, which were thought by the attending physician to be incurable, but on the removal of several deciduous teeth and two diseased first molars, the marked improvement was evidence conclusive that dental irritation was in this case also an important factor.

A well-known dental writer, the late Professor Richardson, has truly said that it is the reproach of curative medical science that patients are being daily drugged for the relief of maladies, which being purely symptomatic of, or dependent on, dental diseases or irrita-

tion, are diagnosed and obstinately and perseveringly treated as idiopathic affections.

It is also a reproach of conservative medical science that countless numbers of teeth are, year after year, uselessly and mercilessly sacrificed through the direct agency or complicity of many medical practitioners, and a reproach of sanitary medical science that, while the greatest circumspection is displayed in guarding the many approaches to the citadel of health, one of the most exposed and vulnerable points, whose defense is essential to the general safety, should be left so entirely uncared for.

Of course, all medical practitioners are not thus perverse and stupid. We number among our clients some of the most clever physicians, who are always anxious, through personal and professional intercourse, to secure any information of value. Many of us too, are called in consultation by physicians who recognize the close relationship of dentistry and medicine. But these are the exception—they are the salt of their profession. It is the average medical practitioner (which is the majority) to whom we allude.—*Independent*

APPLICATIONS of Listerine and glycerine, equal parts, will speedily cure thrush.

OPIUM is a good capillary stimulant and thereby a great factor in the healing of sores.

MAGNESIUM SULPHATE, in ten grain doses daily for several weeks will carry away warts.

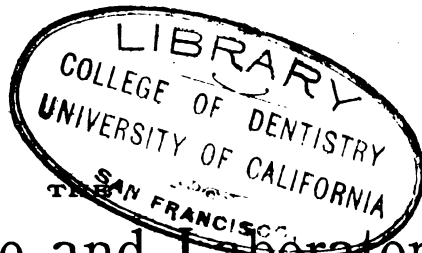
DR. J. A. FRAZIER says that he has had success in bleaching dark joints in porcelain teeth, with 25 per cent. pyrozone.

ACCIDENTAL spots of blood on the clothing can be promptly removed by the application of pyrozone.—J. E. WOODWARD.

FOR tenderness of a tooth after root canal filling Mr. Baldwin uses fluid extract of Jamaica dog-wood, asserting that it has a far better effect than tincture of aconite and iodine.

DISINFECTION OF INSTRUMENTS.

A ten per cent. solution of boro-glycerin in water will sterilize forceps, broaches and cutting instruments, and leave them without unpleasant odor.—A. W. HARLAN.



Dental Office and Laboratory.

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No. 2.

BRIDGE-WORK ON VITAL TEETH.

By N. H. KEYSER, Germantown, Pa.

Aside from the commoner forms of bridge-work sustained by caps or crowns, there are certain forms that may be firmly held by vital teeth, and nicely adjusted will prove more satisfactory than either clasp or suction plates. The disadvantages of suction plates for cases requiring a small number of teeth are well known; not only do they incumber the mouth, but, particularly if single teeth are used, they are apt to produce, by undue or uneven pressure, recession of the gums upon which they unduly press. Spring plates, while very pleasant to the patient when first placed, are apt to soon loosen, indeed in many cases the pressure they exert upon the sustaining teeth will make them spread to such an extent at times as to cause their early loss. The clasp plate has also its disadvantages. With careful attention to cleanliness it is not always possible to prevent decay upon the clasped teeth. These evils have been avoided in the few cases by the method of bridging, which I will now describe.

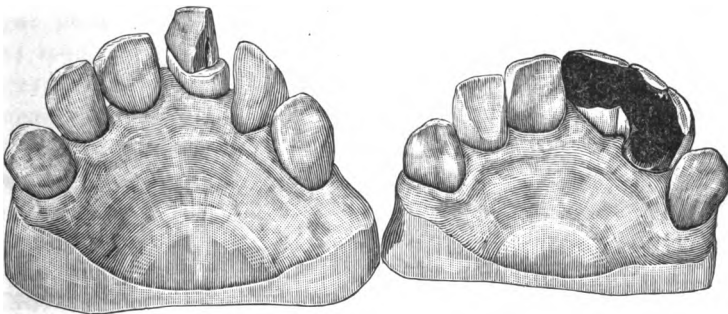


FIG. 1.

The first case, the patient had worn for some years a denture that, while ordinarily comfortable and worn with satisfaction, produced an

unpleasant impression on the mouth, that induced the lady to occasionally let the plate drop upon her tongue, as she said, to rest her mouth.

Fig. 1 shows this case. It would have been impossible to have satisfactorily fastened the left central incisor on the denture. It is shown in the cut, the case was held in by a pin entering the root of the central incisor and a close fitting cap which covered the palatal portion of the lateral incisor, between the plate a "dummy" was attached which filled the space and gave a very different appearance to the mouth. The fixture was secured by gutta percha in the central pin, and cement under the lateral cap.

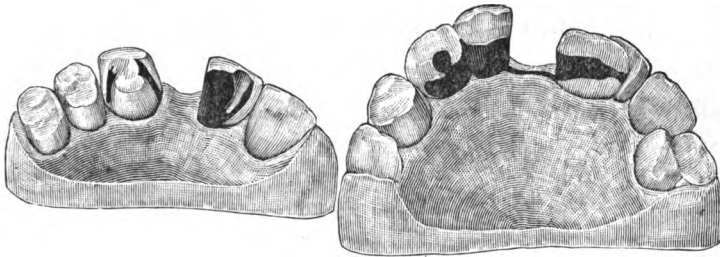


FIG. 2.

FIG. 4.

The second case, Fig. 2, is a modified form of Dr. Bennet's method, and is held in place by guide pins fitting in grooves cut on the mesial and distal aspects of the cuspid, where fillings had been inserted, with caps made to fit the palatal pit of the central incisor and the "dummy" lateral incisor soldered between; this being done without more mutilation to the teeth than the forming of cavities for fillings. On the central a cap fitted the palatal portion, with a small pure gold pin braised on, to extend into, and cover the cavity of decay in this tooth, as shown by the cut. This patient had worn a suction plate

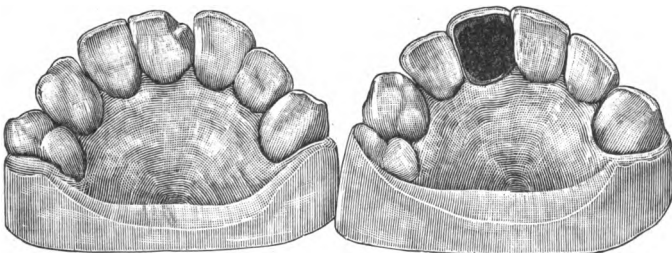


FIG. 3 A.

FIG. 3 B.

sustaining this single tooth for some years and the pressure of it had forced the gum away from the tooth. This fixture I secured in place with gutta percha.

Fig. 3 shows a similar cap to that described above, covering the palatal face of the right central, and holding a porcelain corner on the tooth. Fig. 3 A showing the defective tooth, and 3 B the restoration, by means of the cap over the palatal portion of the tooth. In this case I succeeded in preserving the vitality of the tooth, besides restoring the tooth to its natural shape with porcelain, presenting a very much better appearance than a large gold filling would have done.

Case four (Fig. 4) was not so favorable for capping. The patient had been wearing a suction plate for some time, sustaining a tooth that had been extracted. This had commenced to decay on the plate and being the only decayed tooth in the mouth looked very badly.

Small catches were extended around the adjoining tooth, as shown by the cut, that on the cuspid being made T shape, to prevent tilting forward. On the central a small catch extended half way up so as to rest on the bulging part of the tooth.

Success in these cases, of course, depends very much on the favorable position and shape of the supporting teeth.

I have endeavored, in the cases illustrated thus briefly told, to show how, by slight modifications of old ideas, satisfactory results may be accomplished.

A NOTE ON CAPPING A TOOTH PULP.

It is often troublesome to cap a pulp with oxiphosphate of zinc on account of that material sticking to the instruments used to convey it to the parts desired to be covered without spreading it over the whole of the cavity. By the use of the following method the troublesome part can be avoided.

Take a piece of clean writing paper of the proper size and on the paper place a sufficient quantity of the cement, soft or hard, as the case requires; having taken hold of the corner of paper with the plicrs before the cement was placed on the paper, carry the paper and cement to the parts to be capped, pass a burnishing instrument against the paper and burnish the capping to its place. If it is desired to get the benefit of the sticking qualities of the cement to assist in holding the filling in the cavity, put cement on both sides of the paper, before placing it in place.

The same method can be used with the paper and chloro-percha.

Not only does the paper act as a convenient carrier but it is a splendid non-conductor. Superior to almost everything used for that purpose.—C R. TAYLOR, D. D. S., Streator, Ill.

[TWENTY-FIFTH PAPER.]

QUESTIONS AND ANSWERS FOR DENTAL STUDENTS.

BY THEODORE F. CHUPEIN, D. D. S., Philadelphia, Pa.

Q. Was the filling of nerve canals always practiced ?

A. It was not.

Q. Why was it not ?

A. Because the propriety, or utility, of it was for a long time doubted.

Q. Did not some dentists practice it ?

A. It may be, but opposition to it was founded on the belief that a devitalized tooth was a foreign body to the organism, and whether the root canals were filled or not it still remained so and was obnoxious to the surrounding living parts.

Q. Is this not the truth ?

A. More recent practice and experiment prove that this does not necessarily follow ; and that the complete removal of all dead or disorganized matter from the roots of teeth with proper disinfection and sterilization render a tooth thus treated *not* a foreign body in the organism.

Q. Who were the first dentists to demonstrate this ?

A. Doctors Maynard and Baker.

Q. What did they prove ?

A. That the condition of pain and disease resulting from the death of the nerve, whether this death occurred from natural causes or from intentional devitalization, was due to the irritation produced by the septic matter contained in the nerve chamber and roots of the tooth.

Q. How did they propose to avoid this ?

A. By removing all disorganized tissues from the pulp chamber and roots ; sterilizing the parts with antiseptic medicines, and filling the roots, or nerve canals, as well as the crown.

Q. Is this treatment always successful ?

A. Not always : but when properly and thoroughly done it frequently is.

Q. What was their rationale of this treatment ?

A. That by preventing the accumulation of septic matter at the end of the root or roots, where its secretion exists it would cause a cessation of it, or if not an entire cessation, that it would continue no faster than the accumulation could be absorbed.

Q. What does the treatment prove ?

A. That though dead to the sensation of excavation, the tooth

still possessed a secondary vitality, receiving its nourishment through its peudental membrane and cementum, and was thus tolerated by the organism, remaining comfortable and free from pain, and exerting no apparent diliterious influence to the contiguous parts or the neighboring teeth.

Q. Could these conditions be accomplished in teeth whose nerves had died and when a diseased action was set up from such death?

A. They could; but the chances of successful treatment was very much lessened when the cases were permitted to progress thus far.

Q. When the nerve has died from the natural exposure produced by extensive decay and the shocks given by taking hot, cold, sweet, acid or salt food in the mouth setting up the gradual disorganization of the pulp, which will result in alveolar abscess if not checked, what should be done?

A. The cavity of decay should be freely opened and the decayed dentine gently peeled away until the pulp chamber is reached.

Q. What ensues then?

A. A drop or more of pus will exude from the opening thus made, accordingly as the pulp is in a greater or lesser disorganized condition.

Q. What will be the result of this treatment?

A. The feeling of discomfort, pain, fullness and tension will gradually cease.

Q. Why is it better to attack the case at this point?

A. Because we prevent an immense amount of suffering to the patient, besides attacking the case at a stage where the disease has not proceeded beyond the end of the root, and thus making the case more amenable to treatment.

Q. Which cases are most amenable to treatment?

A. Those cases where we do not wait for a diseased condition to begin; but purposely devitalize the pulp, remove it from the pulp chamber and canals, and filling these, as well as the crown.

Q. What is the course of treatment pursued when abcess has supervened?

A. The cavity of decay is freely opened and a fair, clear and direct approach made into each root canal. All septic matter is removed from these, the canals enlarged sufficiently to permit easy access to each and the canals treated with proper germicides, antiseptic, sterilizers and deodorizers.

Q. Do you not fill the roots and crown when this treatment is completed?

A. Some operators recommend immediate root filling "but the

majority seem to think it is better to wait before filling the roots.

Q. What is done then after the roots have been treated as you have detailed?

A. The canals are loosely filled with cotton charged with some deoderizer as also the cavity of decay. At the next appointment plain cotton is introduced into the root pressed in firmly and the main cavity sealed with red gutta percha.

Q. Why not fill the roots and crown at once at this stage?

A. Because the case may not be entirely cured.

Q. How do you determine if a cure be effected?

A. It is thought that when the plain cotton is removed from the canals and this comes out clean and white without the least stain or odor that the case is ready for permanent root and crown filling.

Q. Should it not do so what is to be done?

A. The treatment is continued until all septic matter is removed.

Q. Is this the only treatment observed?

A. No—for we find diseased teeth with fistulous openings on the gum leading from one or more of the roots, and from others where there are no fistulous openings or abscesses or gum-boils as they are popularly called.

Q. What is done when we find fistulous openings?

A. The canals are carefully cleaned, permitting no debris to go in advance of the reamer or probe, so that a fair clear opening is maintained from the root to the fistulous tract and opening.

Q. Why is this necessary?

A. Because if debris is permitted to choke the foramen at the end of the roots, the medicines used to effect the cure are confined within the root alone, and do not attack the disease which has its seat beyond the root and along the track of the fistula.

Q. Suppose no debris chokes the apex of the root what ensues?

A. The medicines used in the root canals follow the track of the abscess and exude through the fistula on the gum.

Q. How is this effected?

A. Generally by arming a probe with cotton, dipping this in the medicine, and using it as a piston with a pumping motion so as to force the medicine through the root apex and along the track of the abscess.

Q. Can it not be effected in any other way?

A. Yes. Some have proposed to place a drop of the medicine in the nerve chamber and to bring pressure on it by means of a piece of india rubber placed in the cavity and pressed on by a large plugger or ball burnisher. This forces the liquid medicine in all the root

canals. Others again make use of an abscess syringe used with small rubber cones on the pipe of the syringe endeavoring to effect the same object.

Q. Suppose all these measures fail to carry the medicine along the track of the abscess what is to be done?

A. The abscess is then treated through the gum, by using small blunt probes armed with cotton, and endeavoring to effect a cure in this way.

Q. Is this not the most rational means of treatment?

A. It would seem so, but as these canals or tracks are sometimes tortuous, and the insertion of the probe through the gum tissue gives considerable pain, the whole of the track is not always reached, and the cure is not as often effected as when the medicine is carried through the root and made to exude through the fistula.

Q. Suppose there be no fistula, what then?

A. We must then depend on the thorough medication, disinfection and cure by treating the case through the canals of the roots.

Q. Is it not difficult sometimes to find these root canals?

A. It is often quite difficult.

Q. How are they found?

A. Their locality should be known by the knowledge of the anatomy of the tooth, but they are searched for with very fine delicate probes, but even these fail sometimes to reveal their locality.

Q. What is to be done then?

A. It has been proposed by Dr. Callahan to place a solution of sulphuric acid and water to the strength of half and half, and to seal this in the cavity. The action of the acid will eat away such debris as choke the openings of these canals and leave them free and clear for treatment. The acid is neutralized with a strong solution of bi-carb of soda or with moderately strong ammonia.

[TO BE CONTINUED.]

THE DENTAL STUDENT.

"She taught the child to read, and taught so well,
That she herself, by teaching, learned to spell."—BYRON.

No subject in dentistry should command more of our careful attention than that of the student. Some of us there are who refuse to discuss the student as a living, burning issue. Away with him, ye youth of inexperience!

That this is a condition and not a theory that confronts us was amply illustrated in the report of the Secretary of the New York

State Dental Society on the enforcement of the law of 1892, requiring every person engaging in the study of dentistry to file with the Board of Censors a certificate of studentship. The Secretary in his report says: "This portion of the law has been of great value in three things: First, in revealing the large number of persons engaged in dentistry claiming to have been students ten, twenty, thirty, and two or three even thirty-five years. Secondly, the enormous percentage in the first district—sixty-four per cent. of those registering coming from New York City. Thirdly, the small percentage of those claiming to be pupils of recognized reputable practitioners of our profession. Out of the one hundred and forty-two students that have actually registered, eleven only have perceptors that are members of either the State or District Societies—twelve and one-half per cent., and if we were to take the three hundred and seventy two asking for blanks, the percentage would be still less."

This statement of facts is startling. Only twelve and one half per cent. of the students of the State of New York are with members of our State and District Societies!

It is not claimed that all the worthy members of our profession are Society members, but it none the less goes to prove that a large percentage of our students of to-day are either content or compelled to take up the study of dentistry with the "dental associations" and "dental parlors." It also goes to prove that our society members are not doing their duty in this important work, leaving the field to be tilled by the less worthy members of our profession; for it is a fact that the members of our dental societies are the representative men in their section.

Granting the teaching of the "dental parlors" to be *par excellence*, what can you say of the ethics? Association is everything; "like father, like son," is the old saying. When the student has been taught to look at the Society with suspicion, that fifty cents is the correct price for filling teeth—more is extortion and robbery—that advertising "pays," and a cheap article of dentistry is the proper thing, what can you expect of the future?

"Not for thousands of dollars would I have a student in my office," says one prominent member of our profession. Here we have the trouble. Talk as you may of "legislation" and the "elevation of the college,"—legislation may suppress total ignorance and even empiricism to a degree, but it cannot force mediocrity into thorough competence. The colleges have done much; they can only lead the way; nothing can take the place of thorough office instruction, not only in operative technics but in professional ethics and business methods.

The advancement of the profession is in our own hands ; to cleanse the stream we must purify the source ; to the student we must look for the dignity and usefulness of our profession—its further advancement and uplifting. How careful, then, should be the selection of the student ! It is unnecessary to say that among the first prerequisites should be sufficient mechanical ability, education, and refinement.

He should be of good morals and character ; the public judge you by your students, by the raw material, therefore let the standard be high, as a student of low morals or character cannot help but reflect on your office and yourself.

Take a personal interest in your student—you will both learn ; to my mind it has ever been a question who learned the most, the student or myself. How easy it is to forget ! What perplexing questions ! But you are expected to know ; and it is rather humiliating to confess ignorance of a subject with which you have been and ought now to be familiar ; therefore the student is a stimulant, an incentive to review work long neglected and forgotten.

Don't expect impossibilities of the boy ; do you not see your own mistakes reviewed before you ? It is given to only a few of us to be "born dentists." Save and protect us from some of the specimens we have encountered !

Do not make a playfellow of him ; it may be that no man yet was ever a hero in the eyes of his valet, but let that be no excuse for sacrificing your dignity or authority. Keep him in the laboratory ; he will have plenty of opportunities at college to learn operating ; the country is full of second-class operators, but good mechanical workmen are like angels' visits—few and far between.

Teach him that he must first acquire principles before he can apply them, that the study of physiology is impossible without a thorough knowledge of anatomy.

See to it that he selects a first-class school for his education—you are responsible for this. You may say that it makes no difference so long as he has a diploma. No, indeed ! there are colleges and colleges, diplomas and diplomas. The public are becoming rapidly educated ; they know the good and poor schools. Talk with some of your patients, and you will be surprised at their knowledge. Graduation from a first-class college is a benefit all through life ; one makes associates and acquaintances that are of incalculable value ; the better the school the more desirable the associates.

He comes back from college, "simple as a child, green as a salad," to tell you "the latest." How boldly he offers suggestions, ay, even criticisms ! Deal with him kindly ; he will soon see the error of his

ways. He is, in his own mind, a greater man, a better dentist, than he ever will be in the future; disappointments, failures, trials, temptations, and the loss of self-confidence will insure a balance—they come to all of us. What one finds the world just as he likes?

Youth and new wine each need the mellowing influences of time to bring them to their greatest perfection. Wine is wine, the juice of the grape. Yet time and age do not necessarily bring to it excellence; care, experience and attention are necessary in its production; so in youth, golden opportunities and natural ability are not always the forerunners of prosperity and success—age, experience, adversity, temptations resisted, hopes deferred, trophies unwon, all go to the formation of character, life, the crucible; cares, the fiery furnace, freeing from dross, forming true character and manhood.

Give him good advice and, best of all, good example—not that he needs the advice or will accept it.

Tell him your mistakes; not that he ever expects to make any; oh, dear no! It is surprising how little we learn from others; their failures are nothing to us; we are so constituted that we cannot to any degree profit by another's experience. If we only could begin where another man left off; if he might endow us with his knowledge and experience the same as his goods and chattels, how wise we might be!

It has been truthfully said, "There is no royal road to learning;" every man must have the experience of the man before him; after a time comes judgment, ay, even conservatism, if you please.

Time passes, and our young man starts out for himself, only to find that a college education and a high-class standing are not always the open sesame to practice. The practical application of principles is not so easy, but, like Anteus of old, rising from each defeat with added strength, the elusive god of prosperity smiles on him. Really, the boy is doing better than yourself. Are you jealous? Not a bit; he is yours—your creation; you glory in his success and exult in his prosperity. After a time it is supposed you go to see him; how proud he is of his office, of his acquaintances, and the boy actually seems to be proud of you! How prosperous everything appears! Let us hope it is not all on the surface; that he is an exception, a true *rara avis*—a dentist and a business man.

It is to be hoped that he will continue to be a student, to learn what little he may of the boundless store of knowledge; that he will attend the dental meetings, exchange ideas with his brethren, and be superior to the little jealousies which are always marks of the narrow mind, and become the master-craftsman, looking down the vista of

time to the twenty triumphs behind him, recalling with pleasure the paths which have led him to fame, and at last, like unto the Moses of old, behold the promised land denied to him, but of which he and his time have been the auspicious pledge—a professional standing, yet higher, greater and better, in the age yet to come.—WILLIAM H. BELCHER, D. D. S., Seneca Falls, N. Y., in *International*.

PERPLEXITIES OF DENTISTS.

DR. EZRA F. TAFT, Cambridge, Massachusetts.

We see at once that education has had its influence. It makes no difference whether it is a practitioner in an exclusive locality in one of our large cities, or in a wooden business block of a back country town. If he is a dentist taking such a stand as will do honor to his profession, his callers will be the rich and the poor, the educated and the ignorant; those who appreciate good work, and those who are so distrustful as to ask many questions before even telling why they have called. They are callers, but not all patients. If a man's time is fully occupied, he will naturally work for those patients who most appreciate his work, and are willing to pay what it is worth. Fortunate is he if he can employ some assistant to relieve him of multitudinous cares, and especially to see all visitors.

An early appointment, to accommodate some one who is going away, finds your first patient a little late on account of early household duties. You begin your work for her, however, when some one steps in just for a moment to speak of one of the many hundred things that seems little to the patient, but which is a certain amount of hindrance to the practitioner.

Next, a gentleman calls on the way to his business to make an appointment for his wife. A lady has entered; the rustling of paper in her hand gives you encouragement that a bill is to be paid, and you gladly step in to see her. Your surmise is correct; but, before handing you the money, she begs you to look at your books, to make sure there was not a mistake in the number of fillings indicated in the bill. She is sorry to detain you, but it will only take a minute, and she will be better satisfied.

A nervous, fidgety woman steps in next, to say, with a voice heard almost in the street, that she had not worn that under set of teeth hardly an hour since they were put in. They would not stay in place, and her mouth was too sore for anything.

A little girl runs in to tell you that her mother was obliged to go away and couldn't keep her appointment the next day, and, after

taking several minutes in studying the appointment-book, another time is set. A self-important young man, in joyous costume of latest cut, holding a lighted cigarette between his fingers, would like to know if you had any leisure time this morning, as his wisdom tooth was giving him trouble.

If you are in full practice it is a great help to you, and is money well expended, to have some kind of assistant; yet even then it is often necessary for the dentist himself to see the caller. Many reserve parts of the day for consultation, examination, etc.; yet I do not believe it is possible to carry out that plan, as but few patients would learn of that rule, and when known it would be almost impossible to confine themselves to certain hours. You are in a profession depending on the public for your practice, and to the public you must cater. If your time is fully occupied, you would be glad to put up a sign on your door as to whom you would like for patrons, but that also is impossible. Your callers are from all classes. You must be, at least, civil to every one. Fortunate is that man whose practice is not a local one, but whose patients seek him from miles around, and who makes many of his appointments through the mail. We speak of a man who, through good work and a good name, has secured a large practice, and has the most of his regular office hours filled with appointments for two or three weeks in advance.

The dentist who is in full practice can have no respite during the working hours of the day; and it is not simply mechanical labor, but a continuous effort of the mental and physical powers of the operator. He will work for one patient only a short time, whose nervous organization is such as to try the most patient man. He will work for another a full half day, and, on account of the equanimity and serenity of this person, will be but very little tired, and fully equal to the work required of him the rest of the day. Standing, as many do, from 8 or 9 in the morning till 5 in the afternoon, with one hour's intermission at noon; and not only this, but meeting and working for all classes and conditions of men; children, whose eyes and actions show an uncontrollable fear; women, whose nervousness stands out in their very voice; men, whose time is so valuable that their impatience is almost unendurable—under these varied circumstances, what is to be expected? There may be a constitution now and then made of iron; there may be a nervous organization so wiry that no amount of twisting and pulling can harm it; there may be one occasionally who has the happy faculty of so directing his work that it leaves no bad results; but the average man can not do this. With his time all occupied, he finds himself at the close of the day a mental and

physical sufferer. Let this be kept up and the overstrained nerves will finally yield. Physically, there are few professions calling for such constant strain on one's system. The enforced and unnatural position, which must be sustained for so long a time, will introduce us to the pangs of rheumatism, lumbago, and kindred ills. The strain on the eyes, which is so constant, brings on a series of head troubles, from which very few of us are free. All this means that the average practitioner is doing more than he is able, and does not know any method of lightening his labors, and still hold the practice he desires to have. It means that he is not master of his own time, but a slave to his patients and friends.

Three brothers were comparing notes on their different occupations—the one a bank teller, the second a physician, the third a dentist—each claiming his life was a struggle, and more undesirable than the others.

The teller, especially, laid stress on the fact that his time was not his own; that his hours were defined, his work was to be done every day, with no cessation. Whatever his physical feelings, or his longing for a little outing, he was under the control of a higher power that said "No."

The physician felt he was a burdened man. To be sure he was his own master; but his life-work was to battle with disease, and as he had the care of the health of different families, he had great responsibility; he must be ready to go night or day, and have but very little leisure or time that he could calculate on as being his own.

The dentist's life was looked on by the other two as most attractive by comparison; perfect control of his time by appointment, making his day as long as he saw fit, drawing such a line among patients as to exclude those who were undesirable, and, finally, so remunerative—large fees with but very little expense.

Doubtless this is the way our profession is regarded by many who look only on the surface, but the busy dentist could quickly convince them of their mistake, and prove to them that his calling ranks among the most wearing of occupations, physically and mentally, made so in part by petty annoyances to which I have before alluded. If, then, the daily routine of our professional life is such that not only is our time taken up with regular appointments, but we are usually overcrowded by reason of the many interruptions which must come in every man's practice, we must conclude that we are bowing ourselves too much to the will of our patients; we are not free men to do with our time as we would wish to. We have our intimate friends, our old patients—yes, new ones whom we are anxious to hold, who appear

before us and ask our favors. The solution of the problem is a difficult one. You may say the remedy lies in two ways—have some one to assist you, or be wilfully independent. I cannot believe the assistant will very much relieve the situation, and such independence is contrary to our nature. Let us, then, accept the situation, that while we are professional men we are also Yankees—after the almighty dollar. We seek for honor, and wish to be held in esteem by the public and our professional brethren; but we also wish to make a living, do something more than simply pay our expenses. Very natural, then, when overcrowded with patients, to try and accommodate all, to work early and late rather than let some slip from our grasp. Under these circumstances what must the dentist be to withstand all this and meet with success? He must be a lineal descendant of both Job and Samson. He must be firm, and yet sympathetic; be able to so control the mind of his patients that they will not worry him; be amiable, and woe to him who loses his temper. Good humor will sell more goods, build the best houses, plead the most successful cases, write the best sermons, and perform the best dental operations. Some one has said, "A melancholy musician may compose a dead march, but he cannot storm the castle of the soul with the rhythmic artillery of lovely light and joy." A melancholy poet may write Dante's "Inferno," but he cannot give us Milton's "Paradise Lost." The world is full of music. The man who can sing and will not sing ought to be sent to Sing Sing.

"It is easy enough to be pleasant
When life flows by like a song;
But the man worth while is the one who will smile
When everything goes dead wrong."

If it is impossible to curtail our work while in the office, let us do all we can to recuperate when out of it. Let us ride some hobby. In change we find the most perfect rest. Don't forget the couplet of Oliver Wendell Holmes—

"Run if you like, but try to keep your breath,
Work like a man, but don't be worked to death."

International.

VARNISHING CAVITIES.

W. G. BROWNE, Atlanta, Ga.

The incompatibility of tooth-substance and the metals we use for filling teeth is a well recognized fact, and it is always good practice to interpose some substance between the metal and tooth-structure to prevent, as far as possible, any injurious effect from such incom-

patibility. Gutta percha, chloro percha, cement, and varnish, each have their merits, but none seem to have so many points of excellence as a clear resin, such as damson, dissolved in chloroform. It acts as a non-conductor of thermal changes, as well as an insulator against electrical influences. It is not readily soluble in the fluids of the mouth. Being transparent, no discoloration is shown when used, where enamel walls are thin; in fact, it prevents discoloration of the tooth from oxidation when an amalgam is used which contains metals which oxidize in the mouth. To a limited degree, it may act as a support to frail walls of enamel, especially if the filling be inserted while the varnish is in a plastic state; this refers more especially to amalgam fillings.

In the insertion of large gold fillings it is helpful in starting the filling, holding the first mats or cylinders of gold firmly adherent to the dentine, and makes it almost out of the question for gold fillings to come out if proper attention has been given to the method of applying the varnish and gold in the tooth when commencing the filling.

I do not for a moment advance the idea that we should depend on the varnish to retain the filling, independent of other means, but it will not be found necessary to make deep retaining pits, but only slight undercuts in most convenient places in the cavity, thus saving the operator valuable time, and no harm can possibly result from its use, while much good must come.

I am satisfied that when the profession realizes the benefits accruing from this method it will be universally adopted.—*Items of Interest.*

A FEW FACTS ABOUT ALUMINIUM.

A paper read before the Alabama State Dental Association, May, 1894.

BY THOS. P. HINMAN, D.D.S.

Aluminium, the coming metal of the age, about which so much has been said, was discovered by Wohler, in 1827, and isolated by him in 1846. Some authorities, however, claim the honor for Sir Humphrey Davy. Aluminium is an exceedingly light metal, having a sp. gr. of 2.6, an atomic weight of 27, iron being four and gold eight times as heavy. Aluminium has a rather low fusing point, being 1292 F. The tensile strength of Aluminium is 12, that is, it will take 12 tons to pull asunder 1 square inch. Iron having a tensile strength of 29; Silver, 18 2; Gold, 13. In tenacity and malleability nearly equaling gold and silver. In ductility, it ranks seventh among the metals,

conducting power of heat, it ranks fourth, conducting power of electricity, it ranks better than iron. It tarnishes very slowly, and it is not affected by sulfuretted hydrogen. The solvent of Aluminium is hydrochloric acid. The market value has been reduced to sixty-five cents per pound, and fresh uses are being discovered for it every day. The only reason that the price remains so high is in the fact of the cost of separation, as the materials used in separation are very dear, for there is more Aluminium in the world than iron, it forming 7 per cent. of the earth's crust and every clay-bank is a mine of it.

It has nearly driven silver out of the arts, and will finally supercede it entirely on account of its non oxidizable properties and its great malleability; the leaf being used in all kinds of decorations in the place of silver. Aluminium is a very sonorous metal, and when a bar of it is struck, gives off a beautiful metallic sound.

This country, in 1883, produced 33 pounds of Aluminium; in 1892, the output of the United States was 260,000 pounds; in 1893, one firm in Germany turned out 720,000 pounds. Up to January 1, 1893, the total output of the world was 1,000 tons.

The domestic production of Aluminium will be largely increased no doubt by the utilization of the power of Niagara falls. Slate pencils are being made of it, shoes for race horses, racing shells, 1.19th of an inch thick are made of it. These boats being lighter than cedar. It is used for roofing in sheets like tin, for kitchen utensils, as an Aluminium pot costs no more than a copper one and does not corrode, its lightness also being a great advantage. It can be rolled to 1-2000 of an inch in thickness and can be plated with gold, silver and nickel. It can be drawn down to the finest wire. Various accoutrements for soldiers are being made of it, such as breast plates, belts, buckles and helmets, and even cartridge shells are being turned out of it.

Aluminium, added to type metal, makes it more durable, and added to steel, makes it more fluid. A new and beautiful alloy is made by mixing 22 parts of Aluminium with 78 parts of gold, the result being a beautiful, rich, ruby tint; this alloy is susceptible to a high polish. Sounding boards for musical instruments are made of it, which have the richest tones, propellers for ships, valves for air brakes, and various domestic articles.

The time is fast approaching when nearly all of our dental instruments will be made of it.

It is an ideal metal for a dental cuspidor and the frame work of a dental chair made of it would be magnificent.

It is not acted upon by organic secretion, hence it is most desirable for surgical purposes, such as instruments and suture wire.

It is absolutely non-magnetic, but a splendid conductor of heat and electricity; for this reason it is a most perfect metal for electrical purposes. The addition of a small per cent. of silver renders it harder and stronger, this alloy being extremely useful for engineering instruments.

The first public use to which it was put was to cap the Washington monument, in 1885. Aluminum costing at that time, \$8 per pound; this cap has since saved that magnificent monument from destruction by lightning.

Until recently, the only available material for supplying Aluminium was "cryolite," which had to be brought from Greenland, but lately, however, enormous and inexhaustible beds of Beauzite (which is the hydrated sesquioxide of Aluminium), have been discovered in Georgia and Alabama. This bed is 85 miles long and 25 miles wide, running through eight counties. This bed contains 48 per cent. of the wonderful metal. It is separated from its oxide by passing through it a powerful current of electricity, thereby subjecting it to an intense heat, driving off the oxygen and leaving the pure Aluminium.

While all of this has been going on in the mechanical and scientific world, our profession has not been slow to take Aluminium and adapt it to our profession, making crowns, bridges, and dentures, it being in some cases preferable to gold, on account of its great compatibility with the oral tissues. One great advantage which Aluminium has over gold, is in the fact that it can be worked successfully in its pure state, whereas in gold, in Prosthetic dentistry, we nearly invariably work an alloy.

The great drawback, and the only one that prevents its perfect ascension into dentistry is in our inability to perfectly solder it, but this problem, I am delighted to say, is being rapidly solved and the time is fast approaching when we shall be able to solder it as perfectly as gold. For fully two years, I have used Aluminum in making crowns, and not having a solder with which to thicken the cusps, I have used amalgam, working it very dry. These crowns have given perfect satisfaction. I make these crowns by the Morrison seamless method and can, in good faith, recommend them to my fellow-practitioners.

If rubber is vulcanized between Aluminum foil, it comes out beautifully polished and is not discolored as when tin foils are used for this purpose. Aluminum makes an ideal matrix for use with amalgam or cements, it being so soft, it can be formed around the tooth nicely, and oiling the surface lightly, prevents the sticking of the filling materials.

Alumnol an Aluminum salt of Napthol sulphonic acid, containing

15 per cent. of sulphur, of the sulphone group and 5 per cent. of Aluminum, was discovered by Drs. Heinz and Liebrecht, of Breslau, Germany. Alumol is a non-poisonous antiseptic astringent, which exerts more than a superficial action. Solutions of Alumol have an acid reaction, like solutions of all Aluminum salts. They all precipitate albumen, but Alumol differs from solutions of other astringents, in the fact that the precipitate redissolves in an excess of albumen, it is in view of this fact that we get the deep seated action of Alumol. Further, Alumol dissolves in purulent secretions, which is a great advantage, for this excludes the possibility of choking up cavities by coagulation of the albumen.

I have found Alumol to be a splendid cure for inflamed gums over wisdom teeth, giving relief in from 12 to 24 hours, reducing the inflammation very rapidly, without any injurious results. I take the pure powder and place it, by the aid of a thin instrument, underneath the gum, where it is very rapidly absorbed by the overlying tissues.

In its use as a mouth wash, one half to one per cent. solutions are strong enough. I have a sample of Alumol with me and will be pleased to show it or demonstrate its virtues.

NITROUS OXIDE AND ETHER.

BY DR. ALEX. WILSON, F.R.C.S.

In the combination of nitrous oxide and ether we have the most perfect anæsthetic agent at present available, The advantages of both are fully obtained without the disadvantages of either, There are combined all the best features of nitrous oxide, its pleasantness, and its rapid action with the prolonged anæsthesia of the ether.

The patient passes quickly under the influence of the gas, and once unconscious, the ether is gradually turned on, and insensibility can be maintained indefinitely by its action.

There is no struggling, no coughing, or resisting the ether, and the salivation is reduced to a minimum, or is entirely absent.

There is further, the great advantage that the anæsthetic effect can be carefully graduated. If only a little extra time is required a little ether, with the last bagful of gas will sensibly prolong the nitrous oxide anæsthesia without leaving any ill effects in the way of sickness. The stimulating effects are most marked,

There is no need to dilate upon the phenomena of the nitrous oxide and ether anæsthesia, they are similar to those produced by ether alone. Of course it requires practice to be successful with it.

The time at my disposal does not permit me to notice methylene,

bichloride, and other anæsthetics. My experience of them has not been really extensive, and not such as would lead me to prefer any of them before gas and ether or chloroform as routine anæsthetics.

In conclusion, I would like to tell you that I began my career as an administrator of anæsthetics, with a strong prejudice (possibly inherited), in favor of chloroform. As sole administrator of anæsthetics to the Infirmary for four and a half years, my total number of administrations of anæsthetics amounts to about 5,000, the great majority of which are chloroform cases. It was after an extensive experience with chloroform that I began to use ether, and now, though I would never hesitate to use chloroform, I infinitely prefer gas and ether. This preference for ether (given with gas), is also shared by certain surgeons, for whom I previously used to give chloroform. The transition from chloroform to gas and ether was easy, and the advantages self-evident, but I admit it was with difficulty that I broke myself in to the giving of pure ether.

MAGNESIUM HYDRATE.

The use of an antacid is frequently indicated in the mouth in cases of acid secretions, erosions, and other like pathological conditions. A friend lately sent us a bottle of Phillips' Milk of Magnesia, and this has taken the place of all other alkalies.

The use of magnesia as a laxative, or mild cathartic, in the form of effervescent citrate, or as Epsom salts, is too well known to need comment. But there are certain inconveniences attending its employment, such as the danger of forming insoluble concretions in the bowels, through its precipitation from the compounds in which it was an element. In its present form it is a complete hydrate, and hence, is not subject to precipitation by the neutralization of any of the ingredients which hold it in solution in a compound.

It is pleasant to the taste, and if a teaspoonful be taken into the mouth at bed-time, and rinsed about until it comes in contact with the teeth, it will form an antacid coating which will remain for some time, thus materially increasing the benefits to be derived from it. There is no preparation within the sphere of our knowledge which is so useful in acid erosion of the teeth, and it should be prescribed freely in all such cases. It may be used subsequent to cleaning the teeth after each meal, and should certainly be employed at night and morning.—*R. S. Barrett in Practitioner.*

BOOK NOTICE.

THE PRINCIPLES AND PRACTICE OF DENTISTRY, including Anatomy, Physiology, Pathology, Therapeutics, Dental Surgery, and Mechanism. By Chapin A. Harris, M.D., D.D.S., late President of the Baltimore Medical College, author of "Dictionary of Medical Terminology and Dental Surgery," thirteenth edition. Revised and edited by Ferdinand I. S. Gorgas, A.M., M.D., D.D.S., author of "Dental Medicine," editor of Harris' "Dictionary of Medical Terminology and Dental Surgery," Professor of the Principles of Dental Science, Dental Surgery, and Prosthetic Dentistry in the University of Maryland. With twelve hundred and fifty illustrations. Philadelphia: P. Blakiston, Son & Co., 1012 Walnut Street—1896.

It is a pleasure to record the re appearance of this valuable work to the Dental Student in its Thirteenth Edition. The book is placed before us with many improved features. The size reduces it almost to a manual; the typography reflecting the skill of its renowned publishers, and the engravings improved and in every way worthy of a work which has earned for itself renown from its intrinsic merit. The revision has been very careful and thorough, and from our notice of some of its pages we see how much labor has been devoted to the re-writing. The book may be truly classed as a "Mulum in Parvo" of dentistry, as it embraces every subject of interest to dentists, who, if they know this one work thoroughly, leaves little to be desired in farther acquisition.—Ed.

THE PRACTICAL PLACE.

TO RENEW RUBBER DAM CLAMPS.

To brighten and make nearly as nice as new, rubber-dam clamps that have lost the plating and become rusty and discolored, dip them in a bath of sulfuric acid, then remove, and with brush-wheel and pumice make bright. Wash clean and dip in a strong solution of cyanid of potassium, and they are ready for the plating solution. This is made as follows: Put in a six-ounce bottle about 10 cents' worth of nitrate of silver and four ounces of soft water. When thoroughly dissolved, add strong solution of common salt till the curdled appearance given by the salt ceases to form. When settled, use the clear portion for a battery. To make a simple and inexpensive battery, put the liquid in a glass tumbler; having two narrow strips of zinc, one to hook on to the edge of the tumbler, the other to hold the clamp or article to be plated in solution. On the upper end or hook of the zinc strip to hook on the side of the tumbler, soft-solder a piece of copper wire long enough to reach across tumbler and down

half way the opposite side; and on the other end of the wire solder a ten-cent piece of silver for an anode. Put sufficient plating solution in the tumbler to cover the article to be plated, leaving them in for fifteen or twenty minutes, or till nicely covered. Now remove, and with brush-wheel brighten it. Repeat as many times as you wish; each time gives an extra plating. Other uses will be suggested; for nothing is more attractive in a dental office than bright, clean instruments.—W. J. MILLER, Chicago.

SETTING CROWNS WITH CEMENT.

Before setting the crown wipe the gums around the root with a solution of perchlorid of iron, which will prevent weeping, protecting the cement till crystallized,—E. L. CUSTEE.

TO OPEN UP A BLIND ABSCESS.

With a small swab apply a drop of trichloroacetic acid on the gum over the apex of the root; twist the swab gently, applying more acid till you reach the alveolus; with a spear pointed drill go through the alveolus to the sac; with a swab apply carbolic acid (Calvert's No. 1, full strength), thoroughly permeating the tumor; if necrosis is present enlarge the opening and get direct contact with the diseased bone; syringe out the tract with pyrozone, and pump in concentrated lactic acid; saturate a small tampon of cotton with campho-phenique and aristol, and leave in the opening for two or three days till connective tissue begins to form.—A. C. HART.

MENDING BROKEN PLASTER CASTS.

Nothing equals oxiphosphates for mending broken plaster casts or plaster teeth.—GORDON WHITE.

NAPOLEON'S CARE OF HIS TEETH.

The following picture of Napoleon's dental toilet is interesting. "Having washed his face and hands, he picked his teeth very carefully with a boxwood toothpick, and then brushed them for some time with a brush dipped in opiate; went over them again with fine tooth powder, and rinsed his mouth with a mixture of brandy and fresh water. Lastly he scraped his tongue with a scraper of silver, of silver-gilt, or of tortoise shell. It was to these minute precautions that he attributed that perfect preservation of all his teeth, which were beautiful, strong, and regular. During the whole of his reign he never appears to have had recourse, except for scaling, to Dubois,

his surgeon-dentist, borne on the list for 6,000 francs, and the recipient of a gold traveling case, the instruments in which were for the exclusive use of the Emperor."

SIMPLE METHOD OF CLEANING IMPRESSION TRAYS.

Give the impression trays a boating of sweet oil with a woollen cloth dipped in the oil. Put them in strong soap suds (made with soap shavings or powder), boil and wipe dry. Now polish with whiting by using a soft woollen cloth, or fine leather. In this way you can keep your trays bright and clean, and the plaster will not adhere to them.—E. B. EDGERS, D.D S.

CARE IN VULCANIZING WHEN AN ALUMINUM PLATE IS MADE.

Dr. E. R. Johnson says: "A temperature of 350° will soften aluminum. Where vulcanizing is done at 320°, the inside of the vulcanizer will be at least 340°, and should the temperature of the vulcanizer run up a few degrees above 320°, as is often the case, the metal will come out soft. The vulcanizing should be done at 300° for an hour and thirty minutes.—*Extract Dental Practitioner and Advertiser.*"

DISINFECTION OF FOUL ROOT.

Perchlorid of mercury dissolved in absolute alcohol—two or three grains to the ounce; strength of the solution to be modified by the condition of the canal and cavity.—*Dental Record.*

PERSISTENT HEMORRHAGE AFTER TOOTH EXTRACTION.

R.—Tinct. digitalis.....fl. ʒiss.
 Tinct. catechu.....fl. ʒj.
 Fl. Ext. ergote.....q. s. fl ʒiij.
 M.—Sig. Dessertspoonful every two hours.

Give one dose, and then syringe sockets with hot water and pack each socket tightly with absorbent cotton dipped in tannic acid. Place a piece of rubber-dam over the plugged surfaces, and insert a lump of warmed wax with metal.

OPENING UP ROOT CANALS.

Adjust rubber-dam and apply a drop or two of a 40 or 50 per cent. aqueous solution sulphuric acid to shrink and toughen the pulp. After removal of pulp, place a drop or two of the sulphuric acid solution over the mouths of the canals, and with a No. 5 Donaldson nerve canal cleanser, enter slowly and carefully, with a pumping

motion. When all the canals have been thus treated, flood the cavity with a saturated solution of bicarbonate of soda. Effervescence will carry all broken up tooth and pulp substance out of the canals and cavity on to the rubber-dam; cleanse with sterilized water, alcohol or peroxid; dry the canals and fill.—J. R. CALLAHAN.

SENSITIVE DENTINE OBTUNDER.

At a recent meeting of the Stomatological Club of San Francisco, Dr. M. W. Levkowitz made an exhibit of a saturated solution of potassium carbonate in glycerin for correcting sensitivity of the dentine. The following discussion, appearing in the *Pacific Coast Dentist*, seems to confirm the Doctor's claims:

Dr. Clyde Payne: I had occasion to use carbonate of potassium yesterday in a cavity of a cuspid; I could not even ligature on account of its sensitiveness. In a few minutes I applied the clamp and put on the rubber, then applying it again to the cavity I was enabled to excavate thoroughly, the patient claiming that it did not give her any pain at all.

CLEANING GREEN STAIN.

Pyrozone, three per cent., moistened with pumice, adding one or two drops of phosphoric acid, used for cement fillings, is good for green stain on teeth. A tumbler of warm water, containing a little carbonate of soda, is good for rinsing the mouth.—S. B. PALMER.

A HINT.

Dr. J. E. Davis, in an article in the *Items* says:—"A common hypodermic syringe is superior to an expensive abscess syringe in forcing medicine through dead teeth with fistulous opening; simply press a pellet of soft unvulcanized rubber in the tooth cavity; thrust the needle through this in the canal, hold the rubber pellet in place, and you can get all the pressure you want to force medicines through the canals."

SOLDERING GLASS WITH METALS.

C. Margot finds that on heating glass to the melting point of aluminium, its adhesion to the metal is very marked. It is possible to spread the aluminium over the surface of the glass with an iron spatula. It is suggested that this property may be utilized for cementing together the parts of glass apparatus used in laboratories. Magnesium adheres in the same way, more easily than aluminium, but is

oxidized too readily to be used as a substitute. Zinc also possesses similar properties. Ordinary plumber's solder, alloyed with a small proportion of magnesium, can be spread upon hot glass like sealing wax, but unfortunately these alloys are too readily attacked by the moisture of the atmosphere.

TO MUMMIFY PULP IN INACCESSIBLE CANALS.

Apply a paste of tannin with equal parts of creosote and oil of cloves.

DROPS.

Dr. Eder, in the following table, gives the number of drops required to make a cubic centimeter, showing the variations in the size of drops of different liquids :

Water.....	20
Hydrochloric acid	20
Nitric acid.....	27
Sulphuric acid	28
Acetic acid	38
Castor oil	44
Olive oil	47
Oil of turpentine	55
Alcohol	62
Ether	83

—*Scientific American.*

CLEANSING PASTE FOR THE HANDS.

To half pound pulverized borax, add one pound carb. soda and half pound fine pumice, with sufficient glycerin to form a paste. Use in place of soap to cleanse and whiten the hands.—A. C. HEWITT.

TWENTY-FOUR carat gold is all gold ; 22 carat gold has 22 parts of gold, 1 of silver and 1 of copper ; 18 carat gold has 18 parts of pure gold and 3 parts each of silver and copper in its composition ; 12 carat gold is half gold, the remainder being made up of $3\frac{1}{2}$ parts of silver and $8\frac{1}{2}$ parts copper.

THE USE OF STERESOL IN LOCAL ANÆSTHETICS.

M. Creigner, of Paris, says, "Local anæsthetics of different kinds are used for the painless extraction of teeth. The method of applying them often produces as much pain as the extraction itself. To overcome this difficulty different remedies have been applied, but with little success. Steresol has so far given the best satisfaction ; when

painted on to the gums it forms a skin or coating, benumbing and protecting them from the cold produced by a spray, or from the insertion of the hypodermic point. I have used it for some time, and have found that I can use Coryl (which is a favorite local anæsthetic in Paris—C. E. K.), without the slightest pain or disagreeable effect to the patient, and have been able to extract teeth, and some very difficult to extract, without the patient showing the slightest indication of pain. Steresol is a new preparation, and permits, under favorable circumstances, to apply antiseptic dressing, which otherwise could not be done. Its use in dentistry is varied, and it can be applied to ulcers or abscesses, wounding of the tongue, lips, and gums, etc. In consequence of its continued antiseptic properties it will destroy all microbes with which it comes in contact. It will also obtund sensitive dentine, applied on a pellet of cotton to the cavity."—CARL E. KLOTZ, St. Catherines, in *Zahntechnische Reform*.

SOZODONT.

This widely advertised tooth-wash is of indifferent value when compared with standard articles. It is composed of soap, glycerine spirits, cheap oils, and coloring matter.

A NEW USE FOR GUTTA PERCHA.

Gutta percha can be softened almost to a liquid in boiling water to which a little glycerine has been added. In this softened state it will not only absorb tannan and chloride of iron, but also benzine, carbolic acid, salts of mercury, and other hæmostatic and antiseptic remedies. It will retain its efficiency indefinitely. After the gutta percha is saturated with the drug, allow it to cool and form into pellets or roll into sheets. To use it, soften in warm water.

OVER MEDICATION.

In treating alveolar abscesses, we may have too much of a good thing. In pumping carbolic acid, peroxide of hydrogen, bichloride of mercury, etc., into alveolar abscesses, periods of rest ought to be allowed, or only warm water substituted.

SOLUTION FOR DISINFECTING INSTRUMENTS.

R Resorcin gr. x.
 Water min xc.

I use copper points, made from wire, such as are used for electric bells, thus: Fill the apex of root with chloro percha. Moisten small

gutta percha point in chloroform and press down. Heat the copper point and drive home. If the proper length is first taken and the larger end flattened slightly you have a support for your alloy, which will adhere perfectly to the copper, that cannot be excelled. I have used these points for over three years, and am more in love with them each time they are employed. Employing the gutta percha point first prevents any discoloration of tooth.—C. D. HAND.

REMEMBER, if anæsthetics are used, to always have fresh nitrate of amyl on hand. A few drops upon a napkin is the best means of restoring the heart's action in case of syncope.

TO PREPARE GUTTA PERCHA FILLING MATERIAL.

A method is given by Dr. A. H. Stoddard, Boston, in the *International Dental Journal*, to prepare a gutta percha filling material that softens at low heat, packs readily in the cavity, does not drag, yet becomes hard after it has been in the mouth for some time.

It is prepared from Knapp's sheet gutta percha, is cut into strips and allowed to stand two or three days in a solution of oil of cajuput and chloroform, equal parts. Then it is warmed till it becomes thoroughly soft, and plaster of Paris is added till it becomes about the consistency of putty. It may then be taken into the hands and kneaded thoroughly, rolled into strips, and allowed to remain in the open air till the chloroform and cajuput evaporate, when it is ready for use.

CLEANING CLOTHING.

Mullerson's preparation is a mixture of turpentine, $26\frac{1}{2}$ parts; ammonia solution, 19 parts; methylated spirits, 25 parts; ether, $2\frac{1}{4}$ parts; acetic ether, $2\frac{1}{4}$ parts; and water, 25 parts, all by weight.

DISINFECTION OF INSTRUMENTS.

Boro glycerin, combined with sulfate of zinc, affords an agent capable of disinfecting all instruments with no danger of staining the teeth, poisoning the patient, or injuring the instruments.—A. W. HARLAN.

DISINFECTION OF INSTRUMENTS.

(1.) Sterilize coarse building sand by roasting. To fill a suitable vessel with this, and pour in a sublimate solution 4 per cent., or lysol 50 per cent., till the sand is thoroughly soaked; keep covered with a

sterilized piece of pasteboard, pass all instruments through this three or four times—offers simplicity, rapidity, absolute sterility, no injury to instruments —DR A. W. HARLAN.

(2.) A ten per cent. solution of boroglycerine in water will sterilize forceps, broaches and cutting instruments, and leave them without unpleasant odor.—*Items of Interest.*

SUPERFICIAL CARIES AND PARAFINE.

Cut out the superficial decay and dry thoroughly with chloroform. Then soak the cavity with melted parafine, and you will prevent further decay. This method is much superior to nitrate of silver, which blackens the teeth.

A RELIABLE OBTUNDENT FOR SENSITIVE DENTINE.

R	Cocain	grs. v
	Carbolic acid	grs. xx
	Chloroform	3 ss
	Muriatic acid	℥ x
	Alcohol.....	3 ij
		—C. N. PIERCE.

COCAIN UNDER PRESSURE.

Knowing the chances of doing harm to the patient when the hypodermic needle is used, even with a two per cent. solution, I have not been willing to take the chances of employing it in that way, but have confined myself to applying it locally under pressure with suitable compress, always using a ten per cent. emulsion, and in that way have had the most flattering success. The pressure seems to empty the tissues of the blood, and in that condition the gums are more susceptible to the action of cocain.—G. M. MERRITT, Jersey City.

SWAGING ALUMINUM PLATES.

Place a piece of paraffin paper between the die and the aluminum; over the aluminum place thin rubber dam and mallet in proximate form. Remove the rubber dam and place paraffin paper between the aluminum and the counter die. Prevents both leading and battering.

TRICHLORACETIC ACID IN NOSE BLEED.

Prof. Cozzolino (*Journal de Medicine de Paris*), recommends in epistaxis the local application of a 3 per cent. solution of trichloro-

cetic acid. The end of a probe is well wrapped in cotton, dipped into the solution and applied to the mucous membrane of the septum, whence generally proceed severe nasal hemorrhages. To prevent a burning sensation a little 10 per cent. solution of cocain is added. The hemorrhage will generally cease at once. It is superior to the traditional perchloride of iron in that it is aseptie and acts still better as a styptic.

FACIAL FISTULA.

When a fistula has opened on the outside of the face, on account of poulticing or from any other cause, do not extract the offending tooth until you make an artificial fistula inside the mouth. The outside fistula will heal by granulation. If you extract the tooth before doing so, the tissue certainly will be greatly depressed, and an uglier scar result.

RELIEF OF PAIN FROM EXPOSURE OF PULP.

Four per cent. solution of cocain 20 parts.

Pure oil of sassafras 30 "

Melted carbolic acid 50 "

Shake the bottle before using, if the mixture is fresh.

AMALGAMATING GOLD SECTIONS INTO THE CAVITIES OF TEETH.

Coincident with the introduction of the porcelain process of filling teeth with sections of porcelain, I also practiced the art of substituting gold and other metals in the place of porcelain on the grinding surface of the teeth. When the cavity is shallow and greater toughness is required, gold will be the most admissible. The process is essentially the same as with the porcelain. Platina foil is burnished or swaged into the cavity of the tooth to secure an impression, which forms a matrix or mold; then, by fusion, gold or any other suitable metal may be run into the matrix to form a solid section or plug. When completed this corresponds to the lost portion of the tooth. The fusing of the metal may be done by means of the ordinary blow-pipe. In the course of my experiments I have found that after the gold has been molded into a section, it is advantageous to grind off the major portion of the platina lining; this exposes the surface of gold and presents a condition more favorable to unite with the amalgam. The cavity is first lined with a thin coating of amalgam, then the section is coated with a small amount. When it is ready to insert, a slight malleting will drive the section to its proper adjustment

and force out any surplus amalgam. Floss silk is used to tie the section in all proximal cavities and hold it while the amalgam is hardening. The section and the amalgam are then practically one compound plug. This method does away with the unsightly appearance of large blocks of amalgam, reduces the liability of shrinkage, secures the preserving qualities of the mercury as a germicide, and its ready adaptation.

To those who are advocating the use of copper amalgam this new method may be of special interest. I have found it thoroughly practical to adjust sections of gold into a great variety of cavities, and when completed it is difficult to discover they have been amalgamated in place. The use of the rubber dam is seldom required, and the long and tiresome malleting process is dispensed with.—DR. C. H. LAND, Detroit, Mich.

RUBIFOAM.

The following recipe is taken from the *Western Druggist*, vol. 13, p. 394:—

Castile Soap, white.....	9 dr.
Glycerine	9 dr.
Syrup	4 fl. oz.
Water	26 fl. oz.
Alcohol.....	26 fl. oz.
Tincture of Cardamon.....	$\frac{1}{2}$ fl. oz.
Tincture of Canada Snakeroot (1:16).....	$\frac{1}{2}$ fl. oz.
Oil of Peppermint.....	45 m.
Oil of Wintergreen.....	45 m.
Oil of Cloves.....	12 m.
Oil of Cassia	12 m.

Ammoniacal solution of Carmine sufficient to color.

Mix the soap, glycerine, syrup and water; stir well and add the alcohol. Add the remainder of the ingredients, let stand a few days, and filter at a low temperature so that no soap will afterwards precipitate.

VARNISH FOR LINING CAVITIES.

Gum-mastich dissolved in chloroform makes a varnish which excludes all moisture and acts as a non-conductor.—J. C. BREWER.

G. H. WEAGANT ON A USEFUL HINT.

Occasionally we have a corundum wheel which will not fit a chuck—the hole being too large. An easy way to remedy this fault is to make a small band, larger than the size of the hole, place it over the

end of the chuck and pour in some fusible alloy. Remove the band, place the chuck in the lathe, and with a chisel, turn down the alloy to fit the wheel.—*Dominion Dental Journal*.

A BATCH OF HINTS.

R. D., in the *Dom. Dent. Jour.*, gives the following hints :

TAKING A BITE.

Trim your wax, if for upper or lower set, to the contour and length. I once thought that sufficient, but now I get accuracy itself by taking two teeth, if plain teeth, or a couple of the blocks, if gum teeth, cutting away the wax exactly as it has finally to be cut away, to let in the teeth, and then simply set these samples to the exact length and prominence they are to remain.

LINING TEETH.

In lining bicuspid and molars for gold plates, use heavier backing than for front teeth, as these teeth stand a greater strain. Also add a bit of plate—thus doubling the lining at the bottom next to the plate.

Before you extract for a set, take an impression of the natural teeth, and have it in your laboratory beside the substitute.

NEAR PULP EXPOSURE.

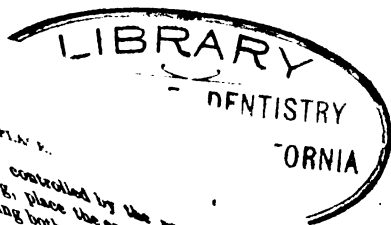
When the pulp is only protected by a thin layer of dentine, cover with oxiphosphate to which creosote has been added, before the paste has begun to set, making it permanently antiseptic and preventing the deleterious effects of phosphoric acid on the pulp when in close proximity.—F. E. HOWARD.

CRANBERRIES IN CHOLERA.

Dr. Goriansky declares that the use of the pure and fresh juice of raw cranberries, given freely, either undiluted or with an equal part of water, is an excellent means of relieving the thirst and vomiting peculiar to cholera. In fifty cases in which ice and narcotics failed to make the slightest impression, the cranberry juice in small but repeated doses rapidly checked both vomiting and nausea—*Exc.*

MANIPULATION OF THE ZINC CEMENTS IN HOT WEATHER

Fill a wide mouthed jar with broken ice, pour in ice water to fill the interstices, and force the ice against the surface of the glass.



The setting of cement can be perfectly controlled by the use of a cold-mixing base. In crown setting, place the crown on the same base while mixing the cement, keeping both at the same temperature. Use platinum-pointed instruments, to which neither cement nor gutta percha will stick.—H. G. REGISTER.

ory.

FINISHING RUBBER PLATES.

I use about one-third emory with my pumice for finishing plates, and finish with half the labor and time. I cover the palatal surface with oil or glycerin to remove the last traces of plaster.—G. C. COWLES.

. 3.

RELIEF OF PAIN FROM CONGESTION OF THE PULP

Wash the cavity with peroxide of hydrogen, and quickly dry it. Apply pure chloroform on cotton, then melted carbolic acid. In five or ten minutes the patient will be comfortable.—A. W. HARLAN

TO PREVENT DARK JOINTS IN VULCANITE WORK.

Grind gum sections to fit closely, and, just before removing from articulator, remove every other block, and touch the joints with a little oxiphosphate cement, mixed thin. Replace the blocks and wipe off all surplus cement.

ARSENIC.

Before applying for the destruction of a pulp, anæsthetize the head of the latter by holding in contact a pellet of cotton, dipped in hot carbolic acid. Most dentists use too much arsenic. If the decomposed dentine is properly removed and the pulp fully exposed, a small pin's head size of arsenic is sufficient.

INSTEAD of paraffine which scales off as soon as wet, melt together rosin and wax on a spatula, and pour on cement filling after it has stood a few minutes. After a day or two it will take a polish almost like ivory.—E. T. DARBY.

HYPERTROPHY OF PULP AND GUM TISSUE.

These growths, which frequently fill large cavities in the molars, may be removed by repeated applications of 90 per cent. trichloro-

cetic acid, wiping out the growth, a layer at a time, without hemorrhage or pain.—E. C. KIRK.

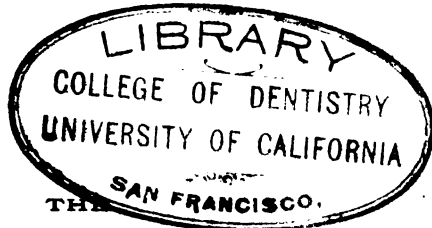
A two per cent. aqueous solution of trichloroacetic acid to moisten the pumice is perfectly harmless. I have used it in my practice for some time, and find it far superior to tincture iodine for removing the "green stain" on children's teeth.—W. H. JONES.

OXYPHOSPHATE AS AN ADHESIVE MEDIUM.

To secure adhesion between the walls of a cavity and any metal, we must use a cement; understanding the most desirable qualities for that to possess, we mix some one of the good oxyphosphate cements, which is always at hand. The amount of cement to be left in the cavity is usually small; so that it is seldom necessary to carry but a small amount to the most accessible wall of the cavity, where it is scraped off of the instrument at the margin of the cavity. No particular attempt is at this time made to spread it over the walls of the cavity as it will not always be an easy thing to do and much valuable time will be lost. Enough amalgam to make a thin layer all over the walls of the cavity, and of the right consistency to permit its being readily and perfectly adapted to the same is then placed in the cement and quickly carried, forcing the cement and air ahead of it, all over the walls of the cavity until they are completely covered. Press home with as much force as the case will admit of.

To insure a perfect metal contact of the filling at all margins, no matter how remote they may be, it is simply necessary to carry a properly shaped excavator around these margins, and remove both the metal and cement at the enamel edge of the cavity.

This layer of amalgam so adapted will remain where first placed, and the remainder of the filling may be built up after any method which is indicated.—J. C. Sr. JUST, D.D.S., in *Dental Review*.



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[SECOND PAPER.]

THE CONSTRUCTION OF ARTIFICIAL TEETH.

BY THEODORE F. CHUPEIN, D. D. S., Philadelphia, Pa.

We continue the subject of Impressions. Should the edentulous mouth or gums present a flabby appearance with the ridge flacid and weak, and the whole surface showing a soft condition ; or should the gums be hard and soft at different points, it would be useless to look for any adhesion should the impressions of such a mouth be taken in plaster of Paris. Such a condition requires that the impression be taken with a material which would bring pressure on these soft flacid parts. Nevertheless we should, as a preliminary step, take a plaster impression and into this impression lay a layer of modelling compound, such as was described in the last paper and with this take a second impression. From this impression make the model and on the model a fusible alloy plate as has been described.

To satisfy our readers that a plaster impression is not indicated in such mouths as has been instanced, we will relate what Dr. W. H. Trueman went to considerable trouble to obtain the impression of a mouth with one of these flacid weak ridges, by first swaging a plate to fit over the posterior part of the mouth where the gums were a trifle more rigid than in front, and then with an impression tray filled with plaster almost as fluid as water he hoped to preserve the condition of the mouth just as it existed. When a vulcanite plate was made from this impression, on the model obtained therefrom, *there was no more adhesion of the plate than if it had been made for some other mouth*, while with an impression taken, which forced these flacid parts away and held them thus, just as the plate would hold them, the adhesion was firm. It may be set down then as a certainty that soft mouths, or mouths having hard and soft places should not have the impressions of them taken with plaster of Paris. We do not use

modelling compound as an impression material except in the way we have indicated, yet we are forced to admit that it is a reliable material, in some hands, for this purpose, and that a clear sharp impression of the mouth can be obtained with it, especially in edentulous mouths. The material is softened in very hot water and should be uniformly soft throughout, and the impression cup heated so that the material may adhere to it. The cup is filled with it to the level with the rims, and all excess of material cut away with scissors, and just before introducing it into the mouth it should be passed over the flame of the spirit lamp. This glazes or softens the surface rendering the surface uniform and better adapted, by this treatment, to copy the fine lines of the gum surface. On pressing it up against the gum the same rule is observed as with plaster: namely, the back part of the mouth is pressed on first when the cup is afterwards brought up against the ridge. It is held *immovably* with the fingers of the left hand while the material is pressed over the alveolar ridge with the fingers of the right hand. It should be held thus steadily, until the material hardens sufficiently *to refuse to receive any mark from the finger nail*. We consider that there is more skill requisite in taking an impression with modelling compound than with plaster and it is to overcome this lack of skill, or knack of taking a perfect impression with modelling compound, that we have suggested the plan of combining modelling compound and plaster of Paris. The hardening of a modelling compound impression may be hastened by squirting iced water, from the dental syringe, against the impression cup, or by throwing a jet of Chloride of Ethel against it. On removing it from the mouth it should be immediately chilled to prevent any change of form, especially if the roof of the mouth is high.

We think modelling compound an excellent material for obtaining the impression of an edentulous lower jaw, as the heavy flow of saliva settling there frequently obliterates the fine lines, with plaster impressions, while it is often very difficult to get the plaster well down on the ridge next the root of the tongue. Impression cups, it is true, have been designed to take these parts, but even with such cups it is often difficult to obtain an accurate impression of these parts with plaster.

PARTIAL IMPRESSIONS.

For taking partial impressions we rely on plaster of Paris, as with modelling compound the presence of teeth, especially if these be narrow at their necks or lean towards each other, will cause this material to drag or bend out of shape, thereby making the impression un-

reliable. In cases such as these, which may be classified as difficult impressions we proceed as follows: Fig. 4 represents such a case.

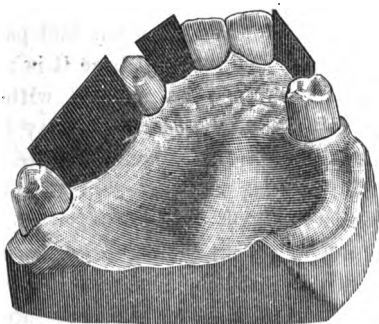


Fig. 4.

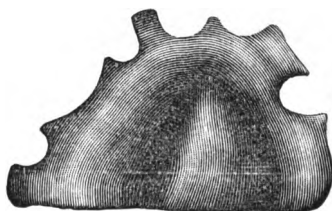


Fig. 5.

We take a piece of brass or German silver plate and fit pieces between the spaces where the plaster is likely to fracture. We make these pieces about one-eighth of an inch higher than the cutting edges of the teeth in the mouth as shown by the illustration. We next proceed to wipe the teeth dry with bibulous paper, and when dried we apply to the dried teeth some adhesive wax, made almost fluid with heat. This adheres firmly to the teeth and by warming the pieces of metal which we had previously fitted, they are held firmly in the interspaces. The mouth being thus manipulated, the batter of plaster of Paris is prepared and placed into the impression cup, which had previously been selected as to its proper adaptability to the case in hand, and carried to the mouth, where it is steadily held until the plaster hardens. Should it fracture in the effort to remove it from the mouth, the fracture will be of such a nature, that the parts may be easily and accurately replaced in the impression cup: for, as the pieces of metal were made only a trifle higher than the cutting edges of the teeth, these being the weakest points of the plaster impression, the lines of fracture will be in these localities and therefore will not, in the least, interfere with the perfection or integrity of the impression.

The impression is varnished with Shellac varnish. When the varnish has dried hard, the impression is either greased with a slight film of oil, or with Etherial solution of soaps and pins, with the heads cut off, stuck into each tooth depression. The model is then made and when hard the impression is cut away from it.

A fine saw may now be used on the plaster teeth of the model until it strikes the pins. This weakens the plaster teeth, and they may be

then broken off from the model and put away carefully as well as the pins which passed through them. A wax base plate is now formed over the surface of the model, where the plate is to rest, and a fusible alloy plate made in the same way as was described in the last paper. Fig 5 shows a plate made from the model. This being done it is tried into the mouth. If it adhere firmly, we may then proceed with the work to completion. The plaster teeth which were broken away from the model may be replaced in their exact places, by means of the pins which passed through them, and the saw marks filled in, either with plaster of Paris, or strong hard adhesive wax.

But suppose the plate should not adhere, what then? In cases such as is illustrated by Fig 4 the lack of adhesion may be caused by the plate riding or pivoting on the hard lump in the roof of the mouth, (see illustration Fig 4.) By scraping the plate at this point so as to relieve this pressure perfect adhesion *may* be secured. If it should not, we proceed as follows: We lay smoothly over the interior of the fusible alloy plate a piece of yellow bees' wax, such as is used for base plates; this being of uniform thickness, warming the plate slightly so as to cause the wax to adhere to the plate. We then place this in a bowl of warm water, *not hotter than 110 degrees F.* This softens the wax uniformly without endangering the melting of the plate,—as the plate would melt in boiling water, and it would not be safe to subject it to a greater degree of heat than 110 degrees. The wax on the plate being softened it is conveyed to the mouth and there forcibly and steadily pressed against the gum, the surplus wax oozing over the edges of the plate and also against the teeth. Plaster of Paris may now be placed in an impression cup and a new impression taken with this plate in position; or modelling compound may be softened and the impression taken with this over the fusible alloy plate. Treated in this way we have been successful when all other means known to us have failed to secure an accurate fit and firm adhesion, and we will have the satisfaction of knowing that we have done all that could be done to accomplish the desired result.

[TO BE CONTINUED.]

IRREGULARITY OF THE TEETH.

(A CORRECTION.)

In an article published in this Journal for September, 1894, we made use of certain illustrations, ideas and processes which we have lately found (though ignorant of the facts at the time) should have

been credited to Prof. S. H. Guilford. We take this opportunity to make the "amende" which we cheerfully do.—THEODORE F. CHUPEIN.

THE DAVIS ANGULAR HAND-PIECE.

BY THEODORE F. CHUPEIN.

We have been using this instrument from the time it was first put on the market, and we can conscientiously recommend it to our brother dentists. The more we use it the better we like it. It reaches places where the direct hand-piece will not touch, and after nine months' use shows no appreciable wear. We find it invaluable in the cleansing of roots for treatment, particularly the buccal roots of upper molars and bicuspid and the anterior roots of lower molars as well as the roots of lower bicuspid.

THE BEST MANDREL FOR SAND PAPER DISKS.

Unquestionably the best Mandrel for Sand Paper Disks is the



FIG. 1.

"Huey" Mandrel. If these are made with a long screw entering the shank, say $\frac{1}{4}$ of an inch, and a small rubber

washer is placed beneath the screw-head, nothing better can be desired. The disks are held firmly and will not be torn, as they are invariably by mandrels which have points that are forced through the paper. They may be changed as expeditiously as any other device for this purpose, by simply reversing the engine which releases the screw-head, when a new disk can be placed on it. There is no breaking of the thumb nail in trying to take off the head, to say nothing of the time lost in doing this. The cost of the Huey Mandrel is 25 cents, while all of these devices range from 60 to 75 cents each. Dentists will therefore find it to their advantage, in every way, to give up the effort to find what inventors claim to be "just the thing," and settle down to the simplest and best device for this purpose.

ILLINOIS STATE DENTAL SOCIETY.

The thirty-second annual meeting of the Illinois State Dental Society will be held in the Senate Chamber, Springfield, Ill., May 12 to 15, 1896. The Executive Committee has been especially fortunate in preparing a very interesting program. No member can afford to be absent. Dentists practicing in the State are cordially invited to attend, and if possible to become members of the Society. The profession outside of the State are always welcome to these meetings. The

usual reductions has been obtained from the hotels and railroads. Pay full fare in coming and take receipt therefore, this when countersigned by the Secretary entitles the holder to return at one-third the usual fare.

LOUIS OTTOFY, Secretary.

Masonic Temple, Chicago.

"GOLDEN ANNIVERSARY."

We hope to be able shortly to publish in full an account of this celebration, held on the 16th of December, 1895, at the Continental Hotel, in this city, which has been from various unavoidable causes delayed. Matters of historic value were presented which we propose to place on record so that they may be conveniently available for future use.—ED.

SELECTED ARTICLES.

ANCIENT AND MODERN HYPNOTISM.

BY W. C. ACHARD, GLOUCESTER, N. J.

Read at the regular meeting of the Truman Dental Society, April 4, 1895.

I will endeavor to give a brief history of hypnotism, a description of the peculiar phenomena accompanying it, and a few words regarding its application in dentistry :

Hypnotism, of which the student of medicine has heard a great deal during the last few years, is by no means the new theory that many consider it; in fact, it is the very oldest method of curing diseases.

There is a sect in Egypt which has practiced it for over 4,000 years. Later on we have the Mumbo Jumbomen of Africa, the medicinemen of the American Indian, the "charmers" of India, the Roman sibyls and Greek oracles. Of the last named we have, foremost, the oracle of Delphi, where in Apollo's temple a priestess sat for hours on a three-legged stool over a chasm in the ground, from which rose vapors of sulphur. In due time she entered the somnambulistic state, and prophesied to the awed listeners. Among the Israelites we have the well-known story of the "Witch of Endor." But for all followers of this most wonderful art, the fakirs in India surpass in skill all European hypnotizers. It is there where the

greatest cures of diseases are effected, although accompanied with much unnecessary mummery.

In the middle ages there were the witches, which, in most cases, were poor unfortunates who had more than ordinary power of "animal magnetism," (as Mesmer called hypnotism). Then came, in 1662, Greatrakes, an Irishman, and a distinguished soldier, who had a revelation in a dream that he could cure scrofula by the laying on of hands.* He accomplished some remarkable cures, and was followed, in 1773, by Gassner, an ex-monk of Suabia who travelled through southern Europe, using Latin phrases in hypnotizing his patients. But it remained for Mesmer to demonstrate the existence of "animal magnetism" in the human body.

Friedrich Anton Mesmer was born in 1734. After studying medicine in Vienna, he began his researches in "animal magnetism" the result of which I will give in his own words. He says: "Through certain manipulations, such as touching, stroking—in a word—magnetizing, even simply by merely a strong act of the will, one can produce this power in persons, impart it to others, and cause the most marvelous and wholesome effects." But he was considered a juggler by medical men, and expelled from Vienna, in 1774, for he alleged cure of a blind girl, (the case of Marie Paradise). He moved to Paris, and opened there his famous parlors. As it may interest you, I will describe his method for the treatment of all diseases: In the operating room there was, in the middle of the floor, a round tub, with a diameter of five feet, which was provided with a lid. On the bottom of it bottles were placed in such a way that the necks of some pointed to the centre, and of others to the periphery. The tub was then filled with water to cover the bottles, and bent iron bars protruded through the lid. The walls were covered with mirrors, which, according to Mesmer's idea, heightened the effect of hypnosis. The patients were seated around the tub closely, and touching each other's knees, each holding one of the iron bars protruding through the lid, and also each other's hands. They were then connected by a cord, which was tied around their waists to assist in the passing of the "magnetic fluid." A mystic twilight pervaded the room, and the ear was charmed by sweet music of the harp and piano, and also the soft melodies issuing from a harmonium, which Mesmer played with a master hand. After

* Edward, the Confessor, King of England, in the year 1064 or 1065 was the first to cure King's Evil or Scrofula by the laying of hands on the afflicted person.—Ed.

some time, the men and women sitting around the tub began to have peculiar sensations, as nervous twitchings, etc., and it was then that Mesmer entered solemnly, dressed in a fantastic robe of embroidered silk, holding in his hand an iron rod, with which he majestically walked around, stroking the patients. Some terrible crisis then ensued, the patients became hysterical, some having terrible convulsions. The most afflicted were then placed in a room, the floor and walls of which were padded.

It must be admitted that Mesmer really achieved some remarkable cures, which were discussed by the whole scientific world, and which led to the celebrated French Commission, appointed in 1784, by the government, to inquire into the nature of the new phenomena. This learned body of scientists included Franklin and Lavoisier, and the result of the investigation may be seen in the last words of this report: "Magnetism is one more fact in the history of human errors, and a great proof of the power of imagination." It may be stated incidentally, that Mesmer closed his parlors to the commission, and they obtained their results from the parlors of one of his friends, Dr. Chas. D'Eslon. Mesmer then retired, and left France at the outbreak of the French Revolution, and died in England, in 1815.

Since then, hypnotism or mesmerism, as it was called, has become an established fact. Prof. Charcot, the famous neurologist, of La Salpetriere, in Paris, commenced, in 1878, his investigations of the effect of hypnotism on hysterics, and demonstrated its different stages.

Another school is in Nancy, with Bernheim and Liebault at the head, and since July, 1886, there has been published a monthly journal, *La Revue de L'Hypnotisme*, with such contributors as Dr. E. Berillon, (the editor), Charcot, Luys, Voisin, Hack-Tuke, and others.

Hypnotism or mesmerism, of which somnambulism is the third stage, is that condition in which the will, self consciousness, and sensations of the patient, are partially or entirely under the control of the operator, the subject losing, in most cases, all remembrance of what has passed during the hypnosis, but in which the subject, when hypnotized again, recovers the memory of the first hypnosis.

We will now consider the methods of producing hypnosis, which are as varied as the results. The ancient Egyptian sect, which I have mentioned, drew in the centre of a white plate two triangles intersecting each other, and filled the figures with cabalistic words and signs. They then poured oil over the plate to make it shine more. After staring at the centre of the plate for a few minutes, they en-

tered the somnambulistic state. In Constantine, the members of the tribe of Beni-Aiaoussa sit down in a circle. After some time they begin peculiar swaying movements, until at last, they spring up, their bodies dripping with perspiration, when with foaming mouths and in convulsions, they are absolutely insensible to pain, performing such feats as piercing their flesh with daggers, walking on hot irons, etc.

In Turkey, and Africa, there are to-day men who hypnotise themselves by staring intently upon their own umbilicus and pressing their tongue to the palate. After they are thoroughly under the hypnotic influence, they are put into an air-tight sack, which is sealed, then into a vault, which is also sealed and covered with earth, upon which grass is sowed. When the whole mound is covered with grass, the vault and sack are opened, and the man de-hypnotized, which is done by forcing open his mouth, pulling out his tongue, (which has settled into the pharynx), and then producing artificial respiration. Even after thus having been buried alive for months, the individual is said to be none the worse for his experience.

Other methods of producing hypnosis are to let the patient stare at a highly polished metal cap, or at a crystal, or any small object held at a distance of two or three centimeters before the eyes. A very good method, however, and one used by many operators, is Gessman's, which he describes as follows in his book, "Magnetismus and Hypnotismus": "I sit down opposite the patient, make her close her eyes, take her hands in mine, so that the four thumbs are pressed against each other, tell her to be quiet, and to yield unresistingly to the first inclination to sleep. When she has fallen asleep—generally within ten or twenty minutes—I increase the sleep by some strokings over her head and chest, and try to induce her to talk. This I easily achieve by placing one hand on her head and taking one of her hands in my other hand, while I, speaking towards the pit of her stomach, ask, 'Do you hear me?' which question must often be repeated four or five times before I receive a very weak answer." Now is the time for further experiments. Gessman uses a preliminary test to ascertain whether or not the patient is susceptible to hypnotism. This he does by telling her that in his organization there is a strong evolution of electricity, which enables him to electrize persons. He lets her seize with both hands two fingers on his right hand, and after some time asks if she feels anything. If she is susceptible, she feels a peculiar crawling sensation at first, and then a numbness in the upper part of the body. Then he says in commanding tone, "Hold

my hand tight—tighter—tighter still—well! Now you cannot let go my hand;” and really she cannot. Blowing on the hands and telling her that she is free ends the spasm.

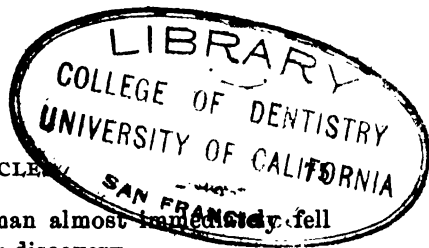
Thus could be enumerated many different methods; in fact, every operator has his own. Persons of a weak will are usually more susceptible than others. Take a child for example: When you, as a stranger, look at it fiercely and tell it “do this,” it will do it, for it recognizes the superior will unconsciously, and that is only a mild form of hypnotic suggestion.

The methods of de-hypnotizing vary also very much. You may use the same methods employed to revive a patient who has fainted. The simplest method is to blow on the forehead. Some persons are de-hypnotized by the simple command, “Awake!” Or, if you tell them that they shall count from one to ten, and awake when they say five, they will do so, and then keep on counting (not knowing why), or else let the word six die out on their lips.

The many phenomena of hypnotism have been divided into separate stages and classes by different authors. We will only consider Charcot’s classification. He accepts the following three stages: First, the cataleptic; second, the lethargic, and third, the somnambulistic; which are described extensively by Dr. Paul Richter, a pupil of Charcot. * The cataleptic state is produced by staring at some object, by a sudden strong light placed under the eyes, the sound of a gong, or a tremendous peal of thunder, also by sudden emotions, as fear, wrath, etc., when a person is for a shorter or longer time deprived of the power of speech or mobility. It also develops from the lethargic state when the already closed eyes are suddenly exposed to strong rays of light by the raising of the lids. It sometimes occurs before the narcotic state, during the administration of anæsthetics. A person who has been hypnotized is often very easily put in the cataleptic state by the clapping of the hands, the report of a gun, the sound of a gong, etc. An amusing incident illustrating this may be told here:

A woman had been suspected of stealing photographs from La Salpetriere, at Paris, but upon being questioned, she absolutely denied it. One day she was surprised, standing motionless at the place where the photographs were kept, with one hand stretched out grasping one. It seems that a gong was sounded in the next room to

* *Cataleptic state*—A spasmodic condition marked by a suspension of consciousness, accompanied with rigidity of the muscles but with no alteration of the circulation of the blood.



SELECTED ARTICLES

hypnotize a person there, and this woman almost immediately fell into the cataleptic state, which led to her discovery.

The characteristic of this state is immobility. The eyes are open and staring; respiration almost ceases; the limbs retain the most difficult positions in which they are placed; the skin is insensible to the strongest irritation, but the muscular senses, and those of hearing and vision partly retain their activity, and are susceptible to suggestion. Catalepsy ceases by a return to the normal condition, or by changing into the lethargic state. This state is produced by staring, or by continual pressure on the eyeballs. It can be produced from the cataleptic state by a simple closing of the eyelids. It is often preceded by epileptic phenomena, such as foaming mouth, asthmatic respiration of tetanus. The principal characteristics are complete insensibility of skin and mucous membrane, irritability of motor nerves and often insensibility to suggestion. Respiration is deep and quickened; limbs and body are perfectly relaxed. The muscles contract by stroking their tendon, and can also be excited directly. By opening the eyes the cataleptic state is reproduced.

The somnambulistic state is produced from the lethargic by a pressure or friction on the cranium. It is the one generally produced by magnetizers, and is characterized by absolute insensibility of the skin and mucous membrane. The senses are also sharpened, and the subject feels a certain personality, an ego, which may be illustrated by the following example: Before a patient in the cataleptic state are the requisits for shaving. They are touched by the operator and the patient at once begins to shave himself, but on being pressed on the cranium he stops and asks, "Why am I shaving myself? I certainly do not need it!" On raising his eyelids he will go back to the cataleptic state and resume his shaving, but care must be taken that he does not cut himself, as he is absolutely insensible to pain. This state is produced by all methods which act on the imagination, and is especially susceptible to suggestion, which susceptibility is almost limitless, the actions of the somnambulist often bordering on the marvelous.

Among the physical effects of hypnotism we may name the muscular sensitiveness in different stages, varying from the flexibilitas cerea in the cataleptic state, to the spasm and tetanus following it. Indeed, the rigidity of the muscles is at times so great that magnetizers produce the cruel experiment of suspending a person in that condition between two chairs, in such a way that the body rests only on the extremes of the head and feet; and to show this power over

the subject, the magnetizer sits with his whole weight on the thus suspended body. This experiment is the more dangerous, as it may produce tetanus of the respiratory muscles. Analgesia, or entire insensibility to pain, seems to be a characteristic of all stages of hypnotism; with a few exceptions, in the somnambulistic state, where it is not only absent, but where the sensibility to pain is often very much increased. In this hyperæsthesia may be found an explanation why the somnambulist may recognize things with his eyes closed, or walk in the most dangerous places with absolute safety. The slightest touch with a hair is accurately localized by him.

In the cataleptic state, the sense of sight, hearing, smell, and taste, may be affected by suggestion, and very amusing experiments are made; as for example, one may give the person a green persimmon to eat, and tell her that it is a good apple, upon which she will enjoy it very much. Or on the other hand she may be given a good apple and told that she is eating a green persimmon, when she will immediately make a wry face and eject from the mouth what is still in it

Among the mental effects, we have in the first place that on memory. It is a characteristic that the deeply hypnotized person upon awakening remembers nothing of what has passed during the hypnosis, which, however, can be controlled by the operator.

If, for instance, you tell your patient that you will remember everything that has passed upon awakening, he will do so. Very peculiar hallucination may be thus brought about. We will take an experiment made at Nancy, for illustration. Mrs. A. is hypnotized by staring. While asleep she is made to believe that three minutes after awaking she will go and embrace a little peasant woman who is sitting in the corner of the room, and whom she then sees for the first time. At the moment predicted she goes and embraces the woman, who is quite astonished at this unexpected caress. When a moment afterwards she was asked, "What did you do?" she answered, "I? Nothing!" "Yes, you embraced that woman!" "No, certainly not!" She had already forgotten what she had done. From this it may be seen, that commands given during hypnosis will afterwards be carried out unconsciously, and this has led to many serious cases of criminal actions. We all remember the historic trial in Paris a few years ago, when a woman murdered a man in obedience to a command given her while under the hypnotic influence. And this brings us to the dangers and abuses of hypnotism.

I will only cite a few cases to show that the hypnotized can be injured by hypnotism, and that he can be used against or without his

will as a tool for the service of crime. The sleep produced by hypnosis is not a normal one, but a nervous pathological state, and as all abnormal conditions of the body must injure it in time, it is obvious that repeated experiments on a sound and healthy patient are more or less injurious, and have a tendency to weaken not only the mind, but the body. It may produce such a susceptibility that a subject will be brought immediately under the hypnotic influence by the slightest cause. There is a case on record in which a man became hypnotized on the street by a light from a carriage coming toward him, and he at once became cataleptic. Should that man walk on a railroad track and see the headlight of a locomotive, it may have the same effect on him, and he would lose his life.

The following is an experiment by Liegeois to prove that a person can be used for a crime against his own will: A young man, 25 years old, while under hypnotic influence, was presented by Liegeois with a white powder, and told that it contained arsenic. "You will immediately go to your aunt; there you will take a glass of water, pour the arsenic into it, dissolve it well in water, and offer the poisoned drink to your aunt!" In the evening Liegeois was informed that the attempt at poisoning had been punctually performed. Thus we could enumerate many cases to show not only the good, but also the evils and abuses of this wonderful art.

How can we apply it in medicine and dentistry? In medicine it has been used with great success all over the world. Insomnia, rheumatism, hysteria, etc., have been treated with its aid, and even amputations have been performed with absolute absence of pain. It may prove interesting to read Dr. James Esdaile's book on "Mesmerism in India," (London, 1846), in which, among other things, may be found a report of the medical and surgical cases treated by him with the aid of hypnotism.

In dentistry it has been used with more or less success. Many have been discouraged after the first few trials, but those who have carefully and with untiring efforts sought the benefits obtained by its use, have been rewarded with greater success than they ever hoped for. We all have had patients whose fear and nervous excitement was so great that it was difficult even to make a proper examination of their teeth. Just there hypnotic suggestion may prove the greatest benefit. We can easily produce the first stage, and suggest quiet, absence of fear, and willingness to undergo any dental operation. This will aid the operator and patient very much, and hypnosis may be pro-

duced again after the operation, to suggest the same after the patient leaves the chair. An inexperienced operator may simply suggest a tranquil frame of mind for the time being and bad results may follow it. It is, therefore, essential to suggest that the patient shall feel absolute quiet and calm after the hypnosis, and shall not experience troublesome consequences. Too much stress cannot be laid on this; as the omission may bring on extreme nervousness, headache and disturbed sleep. The question now arises: Can hypnotic suggestion be used successfully to produce analgesia during such minor dental operations as excavating cavities, extracting pulps, etc.? Dr. Thomas Fillebrown, of Boston, in his paper on "Hypnotic Suggestions as an Obtundent and Sedative," read at the World's Columbian Dental Congress, August 18, 1893, asserts that it can. For this purpose he indicates the first and second degree of the Nancy School, and by constant repetition of "Sleep, sleep, you are resting, you are not suffering, you are not dreading it, you do not care for it, sleep, sleep," etc., he maintains the hypnotic sleep, which otherwise might discontinue as soon as pain is produced. One especially good feature of employing hypnotism for obtunding sensitive dentine, is that the lightly hypnotized patient in most cases shrinks from pain, though he may not feel it, and thus we have a guide to avoid the pulp, which we have not in any other method of allaying pain.

Dr. Gomer Sandberg, of Stockholm, issued in May, 1893, a pamphlet, *Quelques mots sur L'Hypnotisme*, Stockholm, 1893, in which he describes the use of hypnotism for obtunding sensitive dentine in a case he had on the 20th of December, 1889. A lady came to him to have two teeth filled, but the extreme sensibility of the dentine did not permit even the touch of an excavator. He hypnotized the lady, and then suggested no agitation during the operation, quiet and insensibility of the teeth. The last words he repeated many times. He then commenced his work, which lasted one hour and a half, and during which she was perfectly quiet, not experiencing any pain whatever.

In conclusion I will say that the practice of hypnotism requires a great deal of care and experience, and that the hypnotizer should have a good medical knowledge, which it may be said, the modern course in dentistry strives to impart to its student. Its study is not only interesting and instructive, but it is an art with which the good student of medicine and its various branches should make himself acquainted. With a firm will and a determination to surmount all

obstacles, the conscientious student of hypnotism, will pry into its mysteries, and, awed with wonder, exclaim with Shakespeare:

“There are more things in heaven and earth
Than are dreamt of in your philosophy!”

—*Microcosm.*

COCAINE.

BY J. L. NEWBORN, D. D. S., MEMPHIS, TENN.

“Certainly,” says the able editor of the *Cosmos*, “the ghastly record of fatalities consequent upon the use of cocaine preparations is long enough to demand a halt, and that the use of this drug be placed on a clearly defined legal basis.”

In two papers published by Dr. Mattison, Medical Director of the Brooklyn Home for Habitues, on cocaine poisoning, covering a period from May 23, 1887, to March, 1891, he cites thirteen deaths and nearly two hundred less lethal cases. In another paper, covering a later period, increasing the fatal record, he describes two cases: strong men, stricture; twenty mimims of four per cent. solution of cocaine thrown into the urethra—not hypodermically—produced violent convulsions and in spite of all efforts, death in four minutes. A young woman in the hands of a complexion artist suffered great pain from the application of a strong solution of carbolio acid to the affected part. To relieve this a four per cent. solution of cocaine was freely applied—not hypodermically. In a few minutes she became excited, said she felt strange, walked to the window and fell dead.

He emphasizes the need of great care in all cases of cocaine anæsthesia by the following pertinent conclusions:

1. Cocaine may be toxic.
2. This effect is not rare.
3. There is a lethal dose of cocaine.
4. This dose is uncertain.
5. Dangerous and deadly results may follow doses usually deemed safe.

6. Toxic effects may be the sequence of doses large or small, in patients young or old, the feeble or the strong.

7. The danger is greatest when given under the skin.

8. Cardiac or renal weakness increases the risk.

9. Purity of drug will not exempt from ill result.

10. Caution is needful under all conditions.

11. Reclu's method, Corning's device, or Esmarch's bandage should be used when injecting.

12. Nitrate of ampl. hypodermic morphia, hypdermic ether, alcohol, ammonia, and caffen should be at command.

History has repeated itself along lethal* lines as regards cocaine so often, says the doctor, that it really seems surprising that any one at this day should question its powers for harm. It may not be known to all that cocaine has killed in a smaller dose than morphine, but that is a fact. It may not be known to all that cocaine has killed in a shorter time than morphine, but that too is a fact. "If, then, we have such a narrow margin of safety in the use of cocaine, in accurately known doses, the use of a nostrum containing cocaine, in which the existence of the drug is either denied or is of unknown amount, becomes little short of criminality." In spite of this grewsome record, which is but a fractional per cent. of all its untold, therefore unknown temporary and permanent injurious and often fatal, after affects, yet "fools rush in where angels fear to tread."

I suppose that every State and territory and county and important town from Puget Sound to the Florida Keys, and from Wool as took to the Rio Grande, has been canvassed by the nostrum vender, selling to dentists the exclusive rights to use these dangerous cocaine compounds. Our offices are periodically flooded with fancy-colored leaflets offering to give us a half-dozen bottles of their secret "hell-fired" stuff if we will send on three dollars for the best hypodermic syringe ever made, and two or three extra needles thrown in. Some of these seductive offers come from men claiming to be dentists. For references they often inclose pages of flaming certificates from men with "D.D.S." to their names. Often there are those with an easy conscience who have never learned to say no, but greedy of gain, and eager to double or quadruple their practice, with no proper knowledge of dentistry, ignorant of the most elementary features of the action of cocaine, therefore easy victims of the patent nostrum vender. These do not recognize the danger signals exhibited by distressed nature in the pallid cheek, the clammy brow, the labored

*Lethal—Deadly—Pertaining to the production of death.

breathing, and the wild, anxious stare. With a judicious admixture of "cheek," "gab," red rubber, and a hypodermic syringe loaded with something, they know not what, the ignorant public becomes an easy prey, upon whom is entailed, by a wholesale mutilation of the young and old, the loss of useful organs that should have been preserved through life, and a worthless substitute, as a personal souvenir of their stupendous folly.—*Microcosm*.

A NEW ANÆSTHETIC.

An important communication is made by Prof. Theophilus Parvin before the members of the County Medical Society in relation to a new method of painless operations. The Professor had witnessed last summer, in Europe, surgical operations of a grave nature, performed under the use of a weak solution of cocaine and morphine injected around the point of operation.

Dr. Schleich is the man who first experimented with the particular method described, and has performed many serious operations, such as amputation of limbs, removal of tumors and abdominal incisions without causing pain, though the person operated on remains conscious all through the proceedings.

The *modus operandi* is as follows: The part is well cleaned according to the usual methods, then the surface of the skin is rendered insensible to the pain of a needle by a spray of ethyl chloride, and with a hypodermic syringe a number of injections are made in the deeper structures of a solution consisting of 2 parts of common salt, 1000 parts of water, $\frac{1}{4}$ of a part of morphia muriate and 1 part of cocaine.

The tissues are thus infiltrated with the solution, and they become insensible to pain, this insensibility lasting 15 minutes or more.

Professor Parvin believed that at least 50 per cent. of the operations now performed under ether or chloroform could be carried out with the use of this local anæsthetic, which is comparatively harmless and with no bad after effects.

To demonstrate the method of application, and at the same time prove the truth to his assertions, Professor Parvin proceeded to bare his arm, and astonished the audience by stating that he proposed to have an incision an inch long made into his own flesh and stitched up. An assistant, accordingly applied the anæsthetic to the Professor's

arm, and with a scalpel, cut the flesh without causing the least change of expression in his face, and then stitched the wound.

The paper was discussed by prominent surgeons present, some of whom had tried the method and found it as described. General anæsthesia, however, they believed, would still be necessary in the great majority of operations, since unconsciousness was desirable for other reasons than the mere one of producing insensibility to pain. Patients are often terrified by the sight of the operation or the thought of it. Accidents, too, might prolong the time of operation, or unforeseen complications might arise which would require deeper incisions, passing beyond the field of insensibility.

It was the opinion of some that the anæsthesia was the result of pressure on the nerve endings by the fluid introduced, and therefore mechanical in its nature.

Cocaine has long been known as a powerful local anæsthetic, but poisoning from its use has been reported, and therefore it is not without danger.

Though the surgeons present expressed themselves willing to give the method a trial, they were not so sanguine as Professor Parvin, who, in closing the discussion, reiterated the statement he made in his paper, that it would not be long before the bulk of surgical operations, now performed under ether, would be carried on by the use of local anæsthesia.

ON SUCTION CHAMBERS.

Are suction chambers in plates for edentulous uppers advantageous or not? It is almost impossible to dogmatically answer the question, though it merits consideration. The pressure of the atmosphere being, roughly speaking, fifteen pounds to the square inch, and the size of a plate being hardly ever less than four square inches, and generally more, if perfect suction were obtainable such a plate should be able to withstand a displacing force equal to sixty pounds. At first glance it would seem that nothing like this amount of force is ever applied to such a denture, and, doubtless no such amount of direct downward pull ever is. But from the extraordinary force which the muscles moving the jaws have been shown (notably by the late Dr. Patrick) to be capable of exerting, it is certain that the force of the side to side movement, during the grinding of food, must be very large. Such power being applied usually to one side only at a time, and to the grinding services of the teeth, therefore at a distance from the

gum margin of that side, which forms a fulcrum, we have to do with a lever of the first order, in which the weight is represented by the opposite side of the plate. Hence, the tendency whilst grinding food on one side is to displace downwards the other side of the plate, and this with some considerable force; but, because in levers of this kind the effect of the force applied is directly proportionate to the length of the arm on which it acts, the amount of this force would be variable, and depends directly on the length of the upper teeth. The weight of the denture is as nothing compared with this displacing force, yet in suitable cases, by paying attention to a number of details which need not be mentioned now, and by getting as perfect suction as possible, these levers are counterbalanced, and the denture is kept steadily in place. But this suction is only "as perfect as possible." It can never be anything like fifteen pounds to the square inch, and for the following reasons: First, for perfect suction we must have perfect fit. Will anyone contend that the fit we obtain is at best any more than relatively perfect? Secondly, the base to which it is fitted must be a fixed and not a changing base. Thirdly, the exhausting agent must be sufficiently powerful to remove all the air. This we do not believe the tongue can do. On account of the imperfection of our mechanism, more marked in one case than in another, various devices are adopted with the idea of increasing the power of suction. Amongst these are chambers with or without discs. To take first a chamber alone—how can this act? Will it increase the power of the exhausting agent? On the contrary, it will, by giving increased air space, increase the work required to be done. Nor can it effect the base, otherwise than by causing a hypertrophy of the mucous membrane, because its sharp edges act as an irritant, and because pressure over the neighboring part would necessarily cause the blood to run more freely to the piece not pressed on. These theoretical considerations lead us to the conclusion that such chambers do not directly increase the amount of suction. It is, however, alleged that, though they may not do so directly, they assist by lifting the plate away from the hard central portion of the palate and allow it to press more closely home at the margins. This must obviously depend upon the firmness of the margins. In some edentulous mouths the margins are at least as hard as the centre of the palate, and if stumps be present more so. Certainly if this be the object of the chamber it should be of an entirely different shape to that which it usually is, and depend not on the artistic ideas of the maker but on the shape of the hard surface off which it is supposed to lift the plate. To our mind there is far more to be said in

favor of a chamber fitted with a disc. Here we have a soft elastic structure, which will readily adapt itself to the surface of the mouth, and so over this area at least we are likely to get perfect suction. But, leaving out of count the fact that this disc generally soon swells up, becoming too large for the chamber, and otherwise worn out, since this would at best be an indication for its constant renewal, there are the further disadvantages that such a disc, though giving fixity at one spot, would not give immobility to the piece at large; and, moreover the strain and irritation of that particular piece of mucous membrane over which the disc lies is likely to cause a chronic inflammatory process of an undesirable nature. Hence we are of opinion that the use of suction chambers and discs, though time-honored, is one, the advantages of which are not very apparent.—EDITOR, *Dental Record*.

BOOK NOTICES.

THE DISEASES OF CHILDREN'S TEETH. THEIR PREVENTION AND TREATMENT. A Manual for medical practitioners and students. By R. Denison Pedley, M. R. C. S., L. D. S. Eng., F. R. C. S., Edin., Dental Surgeon to the Evelina Hospital for Sick Children, Southwark, London. With numerous illustrations. Published in London by I. P. Legg & Co, 289 and 291 Regent Street, W. In America by the S. S. White Dental Co., Chestnut Street, Philadelphia, Pa., U. S. A. All rights reserved.

We are somewhat astonished that the medical profession should require a book of this kind. It would seem to us that the subjects treated are so hackneyed, so generally known, of such primary knowledge, that any college which would graduate students in either medical or dental branch would fail in the curriculum of their studies if the subjects treated in this book were neglected. However, "a good tale is never the worst for being twice told," and the more a subject is repeated the more its importance is discovered and appreciated.

The work is finely gotten up, the printing excellent, and the manual well adapted for the office tables when its subjects may be read over by "patients who wait." Mothers and fathers and all who have the care of and interest in children will find valuable truths recorded in its pages.—ED.

CATCHING'S COMPERIDIUM OF PRACTICAL DENTISTRY FOR 1895.

It is with pleasure that we hail again the advent of this "Collation

of good dishes" to the table of practical and scientific dentistry. Each year we find improvements in the scope of the work, to which this year opens a new field by the addition of "Science in Dentistry." Dentistry with its "Seven league boots" makes such tremendous strides, that unless the practitioner is armed with all the publications and *reads them*, he must be distanced in the race. How thankful then should the busy dentist be to Dr. Catching and his co-workers, who read and sift the verlose matter from the chaff of prolix notes and give them in a page or less, the esculent kernel of the best articles for their consideration. To subscribe to all the journals published is what we would advise, yet to do this is beyond the pecuniary ability of many in the profession, as well as the time to read them. To those who cannot do this we would say that the next best thing is to buy Dr. Catching's book for \$3.00. This, though it necessarily gives the gist of the best thoughts, a little later than when first promulgated, gives it in a manner to be appreciated by the majority. *Sharp, concise, incisive and brief.* Buy Catching's Comperidium for 1895.—Ed

THE PRACTICAL PLACE.

AS AN OBTUNDANT.

Dr. F. F. Van Woert, of Brooklyn, uses a 50 per cent. solution of sulphuric acid as an obtundant for sensitive dentine. He discovered it by accident, while endeavoring to open the pulp canals of a devitalized tooth with the acid solution. The rubber dam was over the dead tooth, and also over a carious bicuspid which stood next to it. In some way the solution got into the cavity of the living tooth, which he had in vain been striving to excavate. To his surprise, he found that the tooth which had been agonizingly sensitive, was now completely obtunded. Since that time he has been using it with very gratifying results, although not in every case with complete success. Usually, however, it enables him to excavate painlessly. He uses but little at a time, and as the affinity is soon satisfied it becomes self-limiting and will do no harm. If too much is used, it can be readily neutralized with a solution of soda bicarbonate.

DEVITALIZATION OF EXPOSED PULP.

In pulp exposure, place the devitalizing medicine in the dentine away from the point of exposure. You will thus secure devitalization with little pain, and very often more rapidly than if placed

directly upon the exposed pulp. If the caries which exposes the pulp is upon the distal portion of a molar, then make a new cavity upon some mesial aspect of the tooth, and into that place the devitalizing medicine. This new cavity afterwards gives direct entrance to anterior roots, which is usually necessary for a perfect operation.—*Western Dental Journal*.

BALSAM VARNISH.

Dr. Howard's antiseptic varnish for coating cavities preparatory to filling, consists of Canada balsam, to which has been added mercuric-chlorid and thymol, evaporated over a water bath from twenty to twenty-eight hours, and finally dissolved in chloroform. The proper consistency can only be determined by experience and careful observation, and it is upon this that its usefulness depends. When improperly prepared it is valueless. It is not, of course, intended to retain fillings, but to aid in their adaptation, and to act as an antithermal and protective coating.—*Dental Practitioner and Advertiser*.

A HINT ON ARTICULATION.

It is often very difficult to make a full upper denture work satisfactorily when the patient has only the four or six lower anterior teeth. If only the upper set is to be supplied, in adapting the teeth to conform to the lower teeth, leave room for the lower teeth to pass inside of them without touching, thus preventing tipping at the back. Have the lower teeth bite upon a shoulder of rubber upon the upper plate, from the pins of the teeth back about one-eighth of an inch. When the vulcanite is thus used for a masticating surface, use only the finest rubbers.—*Western Dental Journal*.

HINTS.

Glass can be drilled quite easily with an ordinary steel drill, in the dental engine, if the instrument is kept moistened with a solution of turpentine and camphor. By the same means, cavities can be inserted for the filling of artificial teeth. In this operation it has been my custom, to grind away with the corundum wheel as much of the tooth as I desired to contour with the gold and then cut the retaining shape with the drill. Although this method is not one of recent origin, it may oftentimes be found exceedingly useful.—By M. G. JENISON, Minneapolis, Minn., in *Ohio Dental Journal*.

PAINLESS REMOVAL OF PULP ENTIRE.

After removal of arsenic, wipe out with a fresh solution of dialyzed

iron and place in cavity a small pillet of cotton, saturated with tannin and glycerine (sat. sol.). Seal in with gutta-percha. After ten days you can remove the pulp whole, without pain or hemorrhage.—H. H. SILLIMAN.

TO RELIEVE TOOTHACHE,

Wash the cavity with pyrozone, 3 per cent, dry quickly and apply chloroform, followed by melted carbolic acid.—A. W. HARLAN.

INFLAMMATION OF PULP.

To reduce preparatory to arsenical application. Apply peroxid of hydrogen; then, on a whisp of cotton, take up bicarbonate of soda and place in cavity loosely, and saturate the surrounding parts with chloric ether; cover cotton with sandarac varnish. After this treatment the pulp is less liable to give pain from arsenic.

THE USE OF PHOSPHORATED OIL IN DENTISTRY.

Phosphorated Oil is a sovereign remedy for removing violent pain in periostitis resulting from a carious tooth. The cavity should be cleaned and dried and a few drops placed on cotton packed in the tooth, and is held in place by gutta-percha. The pain will vanish in a few minutes. It can be kept in the cavity for days and weeks to the greatest comfort of the patient. The action is not well understood, but Dr. Albrecht claims it is due to the fatty degeneration of the tissue brought upon by the phosphorus in this form. Phosphorated oil is prepared by dissolving one part of dried phosphorus in about eight parts of heated expressed oil of almonds. The U. S. Pharm'œ preparation is 1:100.—By HERMAN PRINZ, Halle, Ger.

GOLD SOLDERS.

Take a United States \$5.00 gold piece, 20 grains coin silver, 10 grains pure copper, 6 grains English toilet pins; melt the silver and copper together first; after melting this and the gold together, add the pins, flow into an ingot and roll, cut it into small pieces and melt again if it should not roll well first time; this will give a solder a little more than 19 carats fine, and flows nicely on coin gold being the same color.

This we call No. 1. Now take of No. 1:

No. 1	89 grs.
Coin Silver	7 grs.
Pur e Copper	4 grs.

Melt together and roll and we have a second grade which we call No. 2, and which will flow on No. 1.

6 dwt. pure gold.

2 dwt. copper.

1 dwt. fine silver.

And you will have a 16 carat solder. In my practice only Nos. 1 and 2 are used, made according to the formulas given above."

SOLDER FOR ALUMINUM.

The problem of a suitable solder for aluminum was ably dealt with by Mr. Joseph Richards before the Franklin Institute. After reviewing the attempts made and the failures met with, he gives his own experience in the search for the ideal solder. He wished to obtain a solder with the following qualities: 1. It must wet the aluminum and adhere firmly. 2. It must not disintegrate after exposure to the air. 3. It must be as malleable and strong as aluminum. 4. It must have a low melting point so as to be easily worked with a soldering iron. 5. It must have the same color as aluminum and not change color. 6. It must be cheap enough for general use. After two years' experimenting the essayist found that an alloy of zinc and tin in certain proportions with a little aluminum and phosphorus produced almost the desired result. After a little further trial the proportions in the alloy were placed as follows: Aluminum 1 part; 10 per cent. phosphor-tin, 1 part; zinc, 11 parts; tin, 29 parts. On remelting this solder a more fusible alloy liquates from it, corresponding as nearly as possible to the formula $\text{Sn}_3 \text{Zn}_4$, which, in the essayist's opinion, makes the best solder available for the aluminum work.

HOW TO GET RID OF FLIES AND MOSQUITOES.

An entomologist in the *Hartford (Conn.) Times*, says that the persistent use of oil of lavender *will drive flies* out of a house, and an application to face and hands at night before retiring will, no matter how many mosquitoes there may be in the bed-chamber, drive them from the sleeper. [Buy five cents' worth of oil of lavender, mix it with the same amount of water, and use a small atomizer to spray it.]

SMALL POX.

A correspondent of the *Stockton, (Cal.) Herald*, writes: Appended

is a recipe, which has, to my certain knowledge, been used successfully in hundreds of cases. It will prevent or cure small pox, though the pittings are filling. When Jenner discovered cow-pox in England the world of science hurled an avalanche of fame upon his head ; but when the most scientific school of medicine in the world—that of Paris—published this recipe as a panacea for small-pox, it passed unheeded. It is as unfailing as fate and conquers in every instance. It is harmless when taken by a well person. It will also cure scarlet fever. Here is the recipe, as I have used it, to cure small pox. When learned physicians said the patient must die, it cured. Sulphate of zinc, one grain, fox glove (*digitalis*) one grain, half teaspoonful of water. When mixed, add four ounces of water, and take a teaspoonful every hour. Either disease will disappear in twelve hours. For a child, smaller doses, according to age. If counties would compel their physicians to use it, they would need no pest-houses. If you value advice and experience, use this for this terrible disease.

GILDING WITHOUT A BATTERY.

Clean the silver or other article to be gilded with a brush and a little ammonia water until it is evenly bright and shows no tarnish. Take a small piece of gold and dissolve it in about four times its volume of metallic mercury, which will be accomplished in a very few minutes, forming an amalgam. Put a little of the amalgam on a piece of dry cloth and rub it on the article to be gilded. Then place on a stone in a furnace and heat to the beginning of redness. After cooling it must be cleaned with a brush and a little cream of tartar, and a beautiful and permanent gilding will be produced by the operation.

ON A LOCAL SEDATIVE FOR DEVITALIZATION OF DENTAL PULPS.

I have used several agents in the place of morphine, which drug I believe has very little anodyne properties, tannic acid, aristol, iodoform, hydrochlorate of cocaine and oil of cloves ; all have been used in the mixture but with negative results, at least in my hands. Recently, however, I have been using a mixture of belladonna extract and arsenious acid, in proportion of two of the extract to one of acid. This is made into a paste with glycerine.

I used the extract of belladonna because of the well known anodyne effect of the drug on the sensory nerves. The glycerine I use because of its emollient property and also because of its power of being easily

absorbed. I have used this formula in several cases, and, so far, feel very hopeful, as I have yet to hear of any severe pain.—A.W. DIACK in *Extract Register*.

SELF RELIANCE.

"When the young eagles are large enough to care for themselves, the mother eagle," Moses says, "stirreth up her nest, fluttereth over her young, spreadeth abroad her wings, taketh them on her pinions and flyeth away." But she does not take them to a place of plenty or safety, but in mid air shakes them off that they may the better learn to fly, and in their hunger learn to fight for prey. Children that are forever kept in the parent nest are seldom of much consequence. God reminded the Israelites that when they were children in capacity and development, "Ye have seen how I bear you on eagle's wings." But when He had brought them to Canaan He told them to go in and make homes for themselves; and when they still acted like children He punished them for their childish cowardice.

TO IMITATE GOLD FILLINGS.

Get, from a china decorator, some gold paste such as is used for decorating china. Apply it with a small pointed brush to the artificial tooth in shape and position the filling is desired. Place the tooth in the furnace and fire to red heat. If the tooth can be watched during the firing, the flowing or fixation of the gold can be readily told. Two or three coats can be used. A firing is necessary for each coat. Polish with dry plaster on the finger, or with rouge.—By B. H. CATCHING, D.D.S., Atlanta, Ga.

CORRECT ARTICULATION IN BRIDGE-WORK.

Place on the gum, between the pier teeth, a bolster of wax, and put in position the pier crown and the dummies as they have been cemented together with wax on the articulating model. Have the patient bite on them, and when each tooth is in proper position, invert on the jaw a partial tray filled with a half-and-half mixture of marble dust and plaster, mixed with water primed with sulphate of potash. Remove from the mouth carefully, clean off the wax, and the piece is invested, ready for soldering.—WM. CRENSHAW.

TO SECURE THE RETENTION OF APPLICATIONS ON COTTON
IN TOOTH CAVITIES.

Flow oxisulfate over the pledget of cotton.—W. D. MILLER.

HOW TO PROCURE AN IMPRESSION OF THE MOUTH WHEN THE PATIENT
IS INCLINED TO NAUSEA AND VOMITING.

Get your druggist to make you some lozenges with one quarter grain of cocaine to each lozenge. Before taking the impression, allow the patient to dissolve one of these lozenges in the mouth and swallow the spittle. If one is not sufficient, give the patient another lozenge, allowing time for the lozenge to dissolve slowly, and you will find that you can take an impression with plaster of Paris without inconvenience to the patient or yourself.—C. V. SNELGROVE, L. D. S., Toronto.

Or better: Permit the patient to inhale the fumes of spirits of camphor from a napkin or handkerchief till all sense of taste and largely feeling is destroyed; then insert the plaster, and while that is in the mouth continue the inhalation.—ED. in *Headlight*.

I have not found bichloride of mercury capable of killing the microbes in a less strength than three grains of bichloride in 1,000 grains of distilled water. One to 1,000 will not do it!

But even one grain of the sublimate will not wholly dissolve in 1,000 grains of water, much less three grains. Add *tartaric acid*, and the solution will be perfect. Tartaric acid will give the further advantage of *preventing* any blood that may ooze out from converting the bichloride into the albuminate of mercury, which is insoluble and inert so far as destroying the pus microbes.

PUTRESCENT PULP CANALS.

Dessicate thoroughly and then saturate with sulphuric ether and iodoform—15 grains iodoform to the ounce of sulphuric ether. Deodorize with oil of cinnamon. Fill at once.—DR. REGISTER.

RELIEF OF AFTER PAIN OF EXTRACTION.

A pledget of cotton dipped in a saturated solution of camphor in chloroform, placed for a few moments in the socket, will almost instantly afford relief. Remove as soon as pain ceases.—D. W. BARKER.

TO REMOVE PLASTER FROM VULCANITE PLATES

If the flasks have been left in the vulcanizer over night, some difficulty may occur in thoroughly removing all plaster. This is overcome by immersing the plates for five minutes in hydrochloric acid.—W. S. NOWELL.

TO ADJUST RUBBER-DAM CLAMPS PAINLESSLY.

Slip over their jaws small pieces of rubber tubing, with the additional advantage of a water-tight fit.—*Dominion Dental Journal*.

MOSQUITO BITES.

A correspondent writes to the *New York Tribune* that an effectual and speedy cure for mosquito bites is aristol. The tip of the finger is moistened with water and a little of the powder taken and rubbed on the inflamed spot.

POULTICE FOR ALVEOLAR ABSCESS.

Boil a dried fig in a solution of boric acid. Cut in halves and sprinkle the surface with powdered boric acid. Apply to the gum. If the abscess threatens to break through the cheek, apply at the same time an ice poultic externally.—HUGENSCHMIDT.

TO CLEAN AND REMOVE STAINS FROM TEETH.

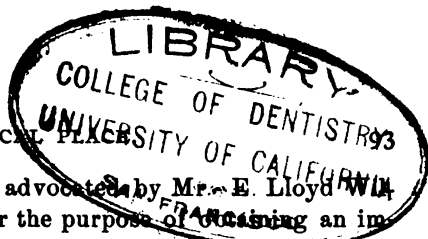
Instead of using water with your pumice and iodine, or sulphuric acid, mix with 3 per cent. aqueous solution of pyrozone, and you will find it more effective and less deleterious to the teeth.—H. L. HARLAN.

ACUTE PERICEMENTITIS.

At a point on the gum some distance from the affected tooth, blister by means of ammonia, capsicum, cantharides or black mustard oil, at the same time painting the gingival margin of the gum around the affected tooth with tincture of iodine. The blood supply will be deflected and the resolvent effect of the iodine will soon be felt around the apex of the root.—A. W. HARLAN

GUM ACACIA IN USE WITH PLASTER.

The addition of gum acacia to plaster, when used either for casting



THE PRACTICAL PLASTER

models or taking impressions, is advocated by Mr. E. Lloyd Williams. When the plaster is used for the purpose of taking an impression, he adds one ounce of mucilage acacia (B.P.) to a pint of alum solution; when, however the plaster is used for casting models slightly less is required. The addition of the gum acacia is said to render the plaster less pliable and more dense, and gives it at the same time a silky look.—*Jour. Brit. Association.*

HYPERSENSITIVENESS AT NECKS OF TEETH.

Apply trichloroacetic acid 10 per cent. except where there is acid reaction of the mouth; in that case use "Robinson's remedy."—I. AUSTIN DUNN.

REMOVAL OF BLOOD STAINS.

Accidental spots of blood on clothing can be promptly removed by the application of pyrozone.—J. E. WOODWARD.

DIAGNOSIS OF PULP STONES.

Persistent resistance to arsenic is a good diagnostic symptom of pulp stones. "Persistent pain that you cannot stop means pulp stones, and it means it always. There is no question about it."—OTTOLENGUI.

TO PREVENT THICK, HEAVY RUBBER PLATES FROM BECOMING POROUS IN VULCANIZING.

Dip the rubber in warm water to soften; roll it in fillings of vulcanized rubber and pack as usual. Will vulcanize quicker and will not become porous even in the thickest portions.—W. S. SIMONTON.

LOCAL ANÆSTHETIC

Alcohol, 98 per cent.....	f 3 ij.
Chloroform.....	f 3 iv.
Ether sulf.	f 3 iss.
Camphor.	3 i.

Dry the gum and apply locally for one minute, buccal and lingual surfaces.—*Del. Solar.*

PREPARING AMALGAM

Some dentists will tell you amalgam should always be washed, and

others, who seldom wash it, will claim this is unnecessary. I am inclined to think the difference in their observation is not so much in the cleanliness of the amalgam as in the quality of the alloy before it is mixed with mercury. I prefer, in my own practice, to use the gold and platina alloy, thoroughly rubbed up with the mercury, avoiding an excess, packing the alloy in small pieces, and gently tapping with the plugging instrument, being careful, as the filling progresses, to wipe off the surface with bibulous paper or absorbent cotton if it appears to contain a larger amount of mercury than it should. This is very important toward the last, if you wish to get the best results from your filling, especially at the margins.—DR. W. W. VANCE.

Use pieces of pumice-stone, instead of charcoal in soldering, and you will have no fumes to cause you headache or hurt your eyes, while inspecting your piece during the process.—J. H. CROSSLAND.

PYROZONE.

Allow me to add a word of caution regarding the 25 per cent. pyrozone solution; it cauterizes and therefore should be employed with care.

It may not be out of place to mention here that liquid alboline is an antidote for pyrozone "burn," and moreover I will say pyrozone should be used in a glass atomizer. I feel sure that this remedy would be all we could wish in cases of pyorrhea, were we able to prescribe positively for the cause, which is undoubtedly systematic.

PYORRHEA ALVEOLARIS.

Not a little credit is due Dr. Peirce for his untiring efforts in prognosing this disease. We shall hope that ere long a prophylactic may be discovered whereby we can safely say a cure, and a permanent cure may be established. To him a monument that shall stand for everlasting and everlasting will be the result.

DENTAL TEACHING.

Mention has been made of the progress in the revised system of teaching in dental colleges. The same credit is due many medical colleges, especially in respect to their establishing a chair on dental surgery, a knowledge of which is recognized as of not a little importance. It brings our specialty into closer relationship with the medical practitioner.

SULPHURIC ACID.

A word in regard to the use of sulphuric acid for the removal of debris from the tooth root canals, "as per Callahan's method," may not be amiss here. The tooth in which it is to be used is to be exposed through the rubber-dam and coated with hot wax as a protection against the action of the acid, and a thorough application of an alkaline solution employed immediately thereafter.

GERMAN COLOGNE.

A perfume similar to the article known as "German Cologne" may be made by the appended formula :

	Parts.
Oil of neroli.....	1
Oil of patchouly.....	2
Oil of sandal.....	2
Oil of lavender.....	3
Oil of rose geranium.....	3
Oil of Canada snake-root.....	9
Tincture of musk.....	40
Water.....	140
Deodorized Alcohol.....	800

—S. G. WASHINGTON.

AN ALLOY WHICH ADHERES TO GLASS.

Walter (*Rev. Scientifique*) has found that an alloy consisting of 95 parts of tin and 5 parts of copper adheres so tenaciously to glass that it may be employed as a solder to join the ends of glass tubes. It is obtained by adding the copper to the tin previously melted, agitating with wooden stirrer, casting or granulating, and then remelting. It melts at about 360° C. By adding from $\frac{1}{2}$ to 1 per cent. of lead or zinc, the alloy may be rendered either softer or harder, or more or less easily fusible. It may also be used for silvering metals or metallic thread.

TOOTH CREAM.

So far as we know the formula for the proprietary preparations mentioned by you has never been published. Previous numbers of

"Circular" contain recipes for tooth creams, however, a typical one being here reproduced :

Powdered white castile soap..... 6 drs.
 Precipitated chalk..... 15 ozs.
 Glycerine, a sufficient quantity
 Flavoring, to suit the taste

Rub the solids thoroughly together and add the flavoring in small portions at a time while the trituration is being continued, then bring to the desired consistency with glycerine. A few grains of carmine rubbed in with the solids will give a pink color.

A good tooth paste flavor is made of

Oil of sassafras..... 5½ drs.
 Oil of cinnamon..... 2 drs.
 Oil of wintergreen..... ½ dr.
 Extract of vanilla..... 4 drs.
 Alcohol..... 4 drs.

—R. AND B, New York

THE CHICAGO DENTAL SOCIETY.

List of Officers of THE CHICAGO DENTAL SOCIETY for 1896 7, elected at the Annual Meeting held in Columbus Memorial Building, Tuesday evening, April 7th, 1896 :

PRESIDENT,	- - - -	LOUIS OTTOFY
FIRST VICE PRESIDENT,	- -	J. E. HINKINS
SECOND VICE PRESIDENT,	-	H. A. COSTNER
RECORDING SECRETARY,	- -	A. H. PECK
CORRESPONDING SECRETARY,	-	GEO. B. PERRY
TREASURER,	- - - -	E. D. SWAIN
LIBRARIAN,	- - - -	H. A. GUNTHER
MEMBER BOARD OF DIRECTORS,		G. H. CUSHING
		G. T. CARPENTER
BOARD OF CENSORS,	- - {	B. D. WIKOFF
		G. W. SCHWARTZ

GEO. B. PERRY,

Corresponding Secretary.

THE Dental Office and Laboratory.

FOURTH SERIES.

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PHILADELPHIA, JULY, 1898.

No. 4

THE CONSTRUCTION OF CROWN AND BRIDGE WORK.

BY THEODORE F. CHUPEIN, D.D.S., Philadelphia, Pa.

[FIFTH PAPER.]

We next propose to describe the manner of constructing an all-gold crown by "Electrical Deposit." The first procedure in this, as in the construction of all crowns, is the preparation of the root. In the preparation of the root for all-gold crowns there is no necessity of cutting the root down to the gum level. Indeed, it were better, and will enhance the stability of the operation, if the remains of the root stand about one thirty-second of an inch above the gum level. The points of similarity will be the disinfecting of the root canals and the preparation of the root end so as to obtain parallel sides.

The first procedure—supposing we are about to construct an all-gold crown for a bicuspid—would be to obtain a natural tooth. The measure of the root end having been taken by the dentimeter, this measure is tried on the root of the natural tooth *at its neck*. If the root of the natural tooth be *too large* it may be ground carefully either with carborundum wheels in the dental engine or in the lathe. If *too small* the circumference may be increased by a film of wax melted over this part, so as to make it correspond in size to the circumference of the root end in the mouth. The crown of the natural tooth is then tried in the space in the mouth to see if this be correct. This should pass between the adjoining teeth *easily*. There should be a space, corresponding to the thickness of a visiting card, on either side of the proximate natural teeth. This space may be obtained either by grinding the natural tooth, should it be too large to pass between, on each of its proximate sides *slightly*, so as not to mar its shape, or by grinding the natural teeth in the mouth on these surfaces slightly also, *but preferably the former*. The object of this is to compensate for the thickness by the electrical deposit.

The natural tooth is then taken in the left hand, and, with a lead

pencil, a line is drawn on it from the point of its buccal surface all along the crown and root, passing its foramen, continuing along its palatal surface and over its masticating surface until the line reaches the point of departure, thus dividing the tooth with the pencil line in two halves. A piece of wax is then softened. This should be about the size of a half dollar and about four times as thick; and the tooth sunk into the softened wax up to the line marked upon it. As the wax will curl in this procedure, the exact halving will have to be farther accomplished with the warmed wax spatula so as to bring the wax *squarely* up to the line. The tooth thus treated is shown by Fig. 70. This is thinly smeared with oil and plaster of Paris, mixed free of all bubbles, poured over it. When the plaster hardens the wax is removed, and guide holes are then made into the plaster, as shown by Fig. 71. This is again coated

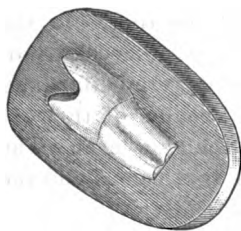


FIG. 70.

with the parting material, wrapped around with a piece of paper and plaster of Paris poured on the reverse. When these two matrices are separated, as shown by Fig. 72, the two plaster matrices are separated, the natural tooth (which served for the model) removed and an inlet cut, as is also shown by the engravings (Figs. 71 and 72). The two halves are held together by an elastic band. Fusible metal is melted and poured into the plaster matrix through the inlet. This produces a metal tooth the same as the natural one, from which the matrix was made, Fig. 73. There is likely to be a slight burr on the sides of the metal tooth where the halves of the plaster matrices came together, but this may be filed off and made smooth. That part of the metal which filled the inlet is now filed or sawed off, and a small hole drilled through to enable the conducting copper wire to be attached to the model. This is shown by Fig. 74. The metal model is now submerged into the gold, silver or copper solution, and connected with the electric battery.

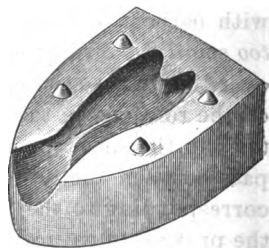


FIG. 71.

For experimental purposes (or copper deposit) a simple battery may be constructed, as shown by Fig. 75. It consists simply of a glass jar, a porous cup, a piece of sheet zinc, and a copper rod. The glass jar is half filled with a *saturated solution* of "blue stone" or

sulphate of copper. The porous cup is filled, half full, with a solution of sulphuric acid and water. A piece of sheet zinc is made perfectly clean by scrubbing it with a piece of rag dipped in a solution of sulphuric acid and water. When thus cleansed, it is slightly amalgamated, on both surfaces, with a few globules of mercury applied with

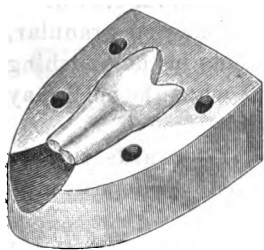


FIG. 72.

a rag. The object to receive the deposit is attached to the copper rod, and suspended in the solution of blue-stone, the zinc plate is also submerged about three fourths of its length in the solution of sulphuric acid within the porous cup, and likewise connected to the copper rod by a fine copper wire. One pound of



FIG. 73.

blue-stone will make three pints of a saturated solution. The blue stone is best dissolved by pouring boiling water on it, and stirring frequently. The strength of the solution of sulphuric acid is about one part of acid to ten parts of water. It should be made in a glazed vessel by pouring the water, gradually, on the acid, and stirring this with a glass rod. If all the water be poured on at once, considerable heat is evolved, which is apt to crack the vessel. These solutions, when cold, are placed in the two vessels — the acid in the porous cup, the copper solution in the glass vessel.

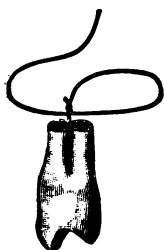


FIG. 74.

The deposit begins very promptly. The object should be removed every half hour or so, and the whole surface brushed over with a scratch brush. The object should be held with tweezers while doing this, as the handling with the fingers is detrimental, all grease or dirt of any kind attaching to the object in the slightest degree defeating the operation. It will take about five or six hours to obtain a deposit of sufficient thickness for a crown.

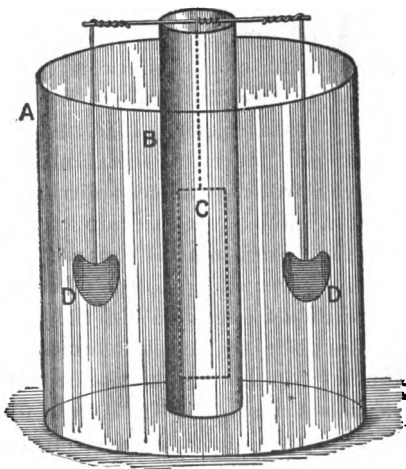


FIG. 75.

This length of immersion will give a thickness equal to about 28 or 30 of the gauge plate when done with copper solution.

The crown is then removed from the solution and sawed off a little above the gum margin. It is then held with tweezers in the flame of the spirit lamp, or Bunsen burner, when the fusible metal melts and falls out, leaving a perfect shell representation of a natural crown.

It will be found that the metal has deposited somewhat granular, but by means of small corundum wheels and points in the polishing lathe, a perfectly smooth surface may be obtained when the shell may be polished. Fig. 76 represents the finished crown.

These crowns could be made of silver and afterwards thickly coated with gold for economy sake; but, if preferred, the deposit may be made entirely of gold.

Should the neck of the crown be too close a fit it may be stretched a little by hammering on the horn of the bench anvil after annealing. A bicuspid crown, such as is represented by Fig. 76, will weigh, after being submerged in copper solution for six hours, about 18 grains.

If the operator desires to make a crown of silver, such as we have described, a silver solution will be necessary. To make the silver solution the nitrate of silver is used. This may be obtained from a druggist, or the dentist may prepare it himself. If the dentist desire to prepare it himself, the manipulation should be conducted either in the open air or within the fire-place where the fumes of nitrous gas may escape up the chimney.



Nitrate of silver is prepared as follows: It is best always to use pure silver, because coin silver always contains a little copper. It is best also to have it rolled quite thin and

cut in small pieces, as the action is more prompt in this form. Take of silver two troy ounces; nitric acid two and a half troy ounces, and about a half ounce of rain or distilled water. The acid is mixed with the water, in small quantities at a time, in an evaporating dish, and the silver added to the mixture. A glass funnel is inverted over this with its edges within the evaporating dish. This is set within the fire place so that the fumes of nitrous gas may escape up the chimney, if the manipulation is conducted indoors. The evaporating dish is set in a tin or iron plate filled with sea sand, and this placed on the basket of the Bunsen burner, Fig. 77, when gentle heat is kept up until all red vapors and ebullition cease. The funnel is then removed and the heat increased, and the mixture evaporated to dryness. The dry mass is melted, and the heat continued with constant stirring, by means of a glass rod, until all the free nitric acid is dis-

sipated. The mass, when cold, is dissolved in six fluid ounces of rain water, when all the insoluble matter subsides, and the clear solution carefully decanted. The residue is then mixed with a fluid ounce of rain water and filtered through paper. The filtrate is then added to the decanted solution, when it is evaporated until a pellicle begins to form. It is then placed in a warm place to crystallize. The final operation consists in draining the crystals until dry. The crystals of nitrate of silver thus obtained should be kept in a wide-mouth, well-fitting ground glass stoppered bottle.

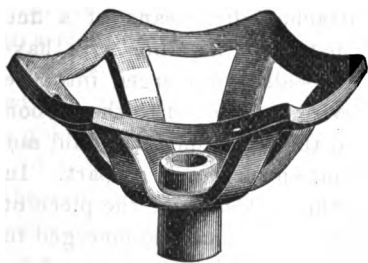


FIG. 77.

THE SILVER SOLUTION.

To make this solution for the deposition of silver, dissolve the nitrate of silver crystals in three pints of rain water. This should be done in a glass vessel or a stone jar glazed on the inside. A little common salt is added to this—a pinch at a time. This will cause the silver in the solution to fall to the bottom. When all the silver in the solution ceases to fall the addition of salt must cease. The water is then carefully decanted and the chloride of silver, which was precipitated in the jar, is washed several times with rain water.

A half pound of cyanide of potassium is added to a quart of rain water, and then added to the chloride of silver in small quantities at a time. This addition forms the silver cyanide or silver solution. When making this solution, it should be stirred with a glass rod until all the cyanide solution is added to the silver precipitate.

To deposit a crown of silver, the Bunsen battery is used. Fig. 78 represents the Bunsen battery. This consists of an outside glass jar in which a solution of sulphuric acid and water is put: one part of acid to ten parts of water. Into this is placed a cylinder of zinc. This should be

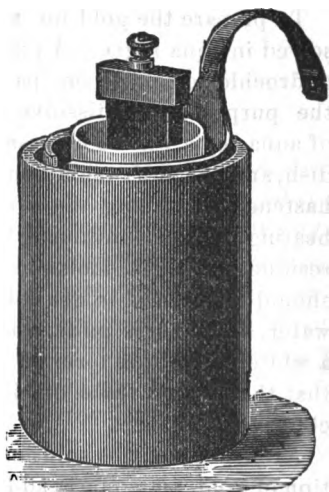


FIG. 78.

scrubbed clean and well amalgamated with mercury. Within this again is placed a porous cup, and within the porous cup a rod of carbon. The porous cup is nearly filled with eight parts of a saturated solution of bichromate of potash to one part of sulphuric acid.

To deposit a crown of silver, the metal model is placed in the vessel containing the silver solution, being attached, by means of a fine copper wire, to the zinc cylinder of the battery. Another wire, having a piece of fine silver on the end of it, is also submerged into the silver solution, and the other end of this wire is attached to the carbon of the battery. This piece of silver and the metal model should not touch each other, but should be kept about an inch or two apart. In speaking of these, the model is called the *cathode* and the piece of silver the *anode*. The model is permitted to remain submerged in the solution about twenty-four to thirty-six hours, removing it from time to time, and scrubbing it with a wire scratch brush, as before recommended.

If it be the intention to plate the crown with gold, twenty-four hours will be sufficiently long to keep it in the solution, the remaining time being consumed for receiving the deposit of gold.

THE GOLD SOLUTION.

To prepare the gold for the gold solution: The gold is first dissolved in aqua regia. Aqua regia is made by combining two parts of hydrochloric acid to one part of nitric. Gold foil scraps are best for the purpose. To dissolve five pennyweights of gold, one ounce of aqua regia will be necessary. The gold is placed in an evaporating dish, and the aqua regia poured on. The solution of the gold may be hastened by placing the evaporating dish in a sand bath, and gently heating this. Continued heat will drive off the acid and leave a residue like thick molasses of a dark red color. At this stage it should be allowed to get cold. This mass is then dissolved in rain water, about three pints, when it becomes of a brownish color. Should a white precipitate form on the bottom of the vessel, this will indicate that there was a trace of silver in the gold, the precipitate being the chloride of silver.

After making this solution from the residue of the aqua regia solution of gold, ammonia is added in small quantities, constantly stirring it with a glass rod. All the gold of this solution will fall to the bottom of the vessel like a brown powder. The liquid is now carefully decanted, and the brown precipitate washed several times with rain water. After this washing the precipitate is dissolved in a

strong solution of cyanide of potassium, a half pound of the cyanide being used to a quart of rain water. This solution is then filtered through paper when it is ready for use.

The deposition of a gold crown is similar to a silver one. The metal model being submerged into the gold solution, and connected with the zinc cylinders of the battery, and a piece of fine gold soldered to a piece of thin gold wire, and this twisted to a copper wire and connected to the carbon of the battery. The same amount of time will be necessary to effect the proper thickness of the deposition for a gold crown as for a silver crown.

A silver crown may be moderately well coated with gold by placing the crown in a vessel, containing the gold solution, on the end of a piece of sheet zinc, which has been scraped clean, and allowing this to be submerged in the solution. Heat, gently applied, hastens the coating.

It has been suggested that the strength of these deposit crowns may be materially strengthened if, instead of scrubbing with a scratch brush, as has been recommended, they be well and thoroughly *burnished*. This compresses the deposit, and in a great measure gets rid of the granulations which form in the process of electrical deposit.

[TO BE CONTINUED.]

METAPHYSICS.

Metaphysicians only preach the gospel of doubt. The whole science of metaphysics consists of the questioning spirit, which analyzes everything without arriving at any definite conclusion about anything. We notice the ingratitude in these philosophers who, in early life, begin by asserting their ignorance and their weakness, and the feebleness of their reason to account for things, when they ask for God's assistance. God in His mercy takes pity on them and answers their prayer, according them the light which they seek and which they could not obtain except through Omniscient aid. But once the reason and light is obtained they turn in their ingratitude and hold themselves up as the true expounders of revelation.

They imagine that the age in which they live is the age of all intelligence, science and wisdom. But don't you think that the Ancient World thought themselves quite as smart and scientific as we think ourselves in our day? Do you not imagine that they thought

that science was as much advanced then as we think it is now? and that there is little yet to be learned? Don't you think that there were religious skeptics, atheists, materialists then as we have them now, who founded their faith on the advances made in learning, science and reason? And yet do we not know how the world believed in Ptolemy and his teaching; yet Ptolemy's theories were set at naught by Copernicus. And so is it now with philosophers like Tyndal, Huxley, Darwyn, Spencer and others, who imagine they are men of God-like minds, while their supposed infallible theories may be upset by others yet to come in another age. The infallible word of God *alone* remains unchanged throughout all ages.

Reason may be a very fine thing, but we cannot test everything by it. The ignorant peasant hoots at the idea of antipodes. His reason and his senses both tell him that such things could not be. What! this flat earth round, and men and women walking topsy turvy! No, no, he was not such a fool as to believe such talk.

Reason alone never yet taught us anything, neither science nor religion. No sane person seeks science unscientifically, but ninety-nine out of a hundred seek religion irreligiously. Humility—not pride—is the A B C of all religion, and he or she who asks God otherwise than a child seeks its father will never find Him. What is reason? Don't you see that it varies in individuals, and is modified by all the accidents of birth, education and life? Does not one man's reason tell him there is a God, and another man's reason assure him there is none? Besides, do all love *right* and hate *wrong*? If reason be your only moral code, it goes neither far nor deep. The purer, the nobler part of man—that part which will suffer ungrudgingly for God, for country, for justice, for right, for honor—has not much to do with reason. For reason has no right to condemn us to sacrifice, and, what is more, reason has never done it; so, if you go by reason, you may certainly avoid foolish things; but you will never do great ones, and, what is almost as bad, you will be incapable of recognizing and admiring greatness in others.

OBSERVATION.

We should all cultivate this useful attribute. When you are introduced to a person remember the name. If your memory be bad, connect the name by some association or circumstance so that you may recall it. In conversing, if the person be a lady, note her complexion,

the color of her eyes and hair, her teeth, lips, cheeks, ears, nose, hands. Let nothing escape you. Note if she be natural or affected. If she speak correctly or make errors in grammar or pronunciation, such as "wonst," "twist," "Toosday," or "between you and I" instead of "once," "twice," "Tuesday," or "between you and me." How she carries herself, how she walks, how she dances. Describe her in your mind. If she have a lively wit, a ready tongue, a showy shape, a sprightly manner. Observe her dress and the way it fits her, and the manner she wears it. Think of its color, material, quality. Her natural and artificial adornments. Whether she be "taking" or "repulsive," reserved or forward, rude or amiable. It is only by the observation of these, and many other points, that one learns to judge character, beauty, amiability, etc. Observation applies not only to persons, but to all things, and the parent should cultivate this spirit by questioning their children when they return from their walk, as to what they saw, and make them describe minutely every little circumstance connected with it.

I recall an anecdote bearing on this, which I will relate to show the difference between two children. A young mother had sent her two little boys to walk. On their return she questioned them as to what they had seen. One of them said, "Oh I didn't see much, only a man driving a cart along the road." The other said "Yes, mamma, I saw that, too; but the cart was filled with bricks, and the man had on an old torn coat and hat, and he had a grey horse pulling his cart; he kept smacking his whip all the time, and a little dog passed and he reached over and cut the poor little dog for nothing. It must have hurt the dog badly, as he limped as he ran away howling. The cruel man only laughed; but I felt glad myself, shortly after, as there happened to be a deep hole in the road and one of the wheels of the cart went into this hole, which upset the cart and nearly made the horse fall, so that the bad man had the trouble to take the horse out of the cart, also a great many of the bricks, so as to make the cart light enough that he could get it out of the hole." Thus we see how observation tells with one and with another; both children having seen the same things.

In our own calling we may observe many things about our patients. Thus, when we see blue eyes and light hair, we may be sure to find white teeth. We see thick lips and flabby cheeks and soft flesh, when we are sure to find thick broad teeth. When we observe hard, dense, yellowish teeth, we also notice stiff hair, rather coarse. When we see the lips firm, the eyes bright, the manner decided, we also observe

hard, strong teeth. Thin lips, sharp angular features show us a decided disposition. Other indications about the face, mouth, teeth, lips and membranes indicate certain diseases, while some of those we have enumerated teach us the temperaments of the individuals. It is only by a close attention to points which many overlook that the symptoms of diseases are noted. It would not strike our attention, on visiting a patient in bed, to notice that he would draw his leg up towards his buttock, yet this has been observed to be the invariable action of the commencement of typhoid fever. The pricking of the bed clothes, the restlessness of the patient, the turning from side to side, the incessant gaping, the constant dropping to sleep with incessant hallucinations, are all indications of disease which aid the physician in making his diagnosis, so that observation is one of the most important attributes to inculcate.—THEODORE F. CHUPEIN.

ALUMINUM CROWNS.

A SINGULAR INCIDENT.

GEORGE L. TODD, Philadelphia, Pa.

A lady, twenty-five years of age, in good health, presented with an aluminum crown on the left inferior second bicuspid to be repaired. I found the grinding surface worn away by mastication. As it was set with cement, I excavated small portions and filled to the surface with alloy—squeezed dry. In eighteen hours after this operation patient returned and said that during the interval she had “spit out a quantity of sand,” as she expressed it, and on examination I found the cement and alloy intact, but the crown had entirely disappeared. As aluminum has no affinity for mercury, I am at a loss to account for this singular behavior.

EDITORIAL REMARKS.

This is not the first time that singular occurrences have been reported in the setting of aluminum crowns. Only lately Dr. Jos. Halsey, of Swedesboro, N. J., reported before the Pennsylvania Association of Dental Surgeons, a singular occurrence in the setting of one of these crowns. In the case he reported he mentioned that the crown was set with alloy; that as soon as it was set, an exudation sprang out from all parts of the crown resembling “hoar frost” in the minutest spiculæ.

When this was wiped away more of the exudation continued. It

finally ceased, when the patient stated that the tooth emitted a "hissing sound" similar to the escape of steam from a steam pipe. Dr. Halsey had set aluminum crowns before with alloy, when no sequences of this nature supervened; but in the case reported he had used an alloy which had been recommended to him, so that he thought the alloy had something to do with the sequences. The report had not been made public as Dr. Halsey wished to make further trials with the same alloy as he had used to find out if similar results would ensue.

The discussion which ensued on this report established nothing, as none of the members present had had any experience of the kind, many of them having never used aluminum crowns; but it was conceded that aluminum was a metal invested with such strange affinities that it was only by delicate chemical tests and experiments that any answer could be given to its many strange peculiarities.

We would invite a discussion on this subject, and be pleased to hear from all who have had any experiences such as have been presented by Drs. Todd and Halsey.—ED.

TO APPLY THE RUBBER DAM.

In order to get the rubber dam well up on the neck of the tooth, so as to obtain a clear view of the cervical margin of the cavity about to be filled, wrap a piece of dental floss or gilling thread twice around the tooth, and push this well up on the neck of the tooth, then tie. Let this remain for a couple of days, and when the patient returns, the application of the dam can be made with ease to the operator and with little discomfort to the patient, affording a perfect view of the parts to be operated on. Should there be a large space between the teeth, the interdental space *below the ligature* may be filled with cotton steeped in sandarac varnish, or with pink gutta-percha.—T. F. CHUPEIN.

CLASP PLATES.

When a resort has to be made to clasps, either in gold, silver, or vulcanite work, for the steadying, retention, or greater stability of artificial teeth, I often find it is better to crown with gold the tooth thus used, as the action of the clasp, either by wear or by the deposition of food held next the tooth, causing decay, or from whatever

other cause, destroys these teeth so quickly that something of this kind should be done for the benefit of the patient, and to prevent the loss of such teeth made very valuable for the support they give to the denture.—T. F. CHUPEIN.

HOW TO SEPARATE A FLASK SO AS TO SOFTEN, NOT MELT, THE WAX BASEPLATE WITHIN.

Boil water in a saucepan, then put the flask in this boiling water. The cold flask, with its investment of plaster, will so chill the water that it will cease to boil. Let the flask remain in the water until the water begins to boil again, when you may lift the flask out and pry it open, to find the wax nicely *softened* and not *melted*.

CHICAGO DENTAL SOCIETY.

I enclose the list of officers of the Chicago Dental Society for 1898-99, elected at the annual meeting, held in the Stewart Building, Tuesday evening, April 5th, 1898:

President, J. E. Hinkins; First Vice-President, D. C. Bacon; Second Vice-President, E. A. Royce; Recording Secretary, Elgin Ma Whinney; Corresponding Secretary, C. S. Bigelow; Treasurer, E. D. Swain; Member Board of Directors, J. G. Reid; Board of Censors, A. W. Harlan, W. V. B. Ames, C. N. Johnson.

C. S. BIGELOW, Corresponding Secretary.

BIRMINGHAM DENTAL COLLEGE.

The annual commencement exercises of the Birmingham Dental College were held at O'Brien's Opera House, Birmingham, Ala., on Tuesday evening, April 5, 1898.

The annual address was delivered by Judge J. J. Banks; the valedictory by H. T. Hamblen, D.D.S., of Texas.

Number of matriculants for the session was thirty-four (34).

The degree of D.D.S. was conferred on the following graduates by T. M. Allen, D.D.S., Dean:

J. W. Balkcom, Ala.; C. F. Ellis, Texas; W. R. Dillard, Miss.; I. F. Drummond, Ala.; H. T. Hamblen, Texas; J. W. Key, Miss.; H. N. McTyeire, Ala.; R. L. Rogers, Georgia.

THE NATIONAL DENTAL ASSOCIATION.

The next annual meeting of the National Dental Association will be held in Omaha, commencing on Tuesday, the 30th day of August, 1898.

Attention is called to the fact that all who were members of the American Dental Association and of the Southern Dental Association at the time of the formation of the National Dental Association, are now members of the latter organization.

The Constitution, Article III., Section 5, provides as follows :

"It is hereby specially provided that all persons at present permanent members of the American Dental Association and of the Southern Dental Association, are permanent members of this Association, and entitled to all the privileges of the class to which they belonged without further action, and the treasurer is hereby directed to transcribe their names upon the roll of membership of this Association."

The officers of the National Dental Association will leave nothing undone to make the meeting at Omaha a success, and they hope the attendance and interest in the first active annual meeting of the Association will be commensurate with its importance.

By order of

THOMAS FILLEBROWN, President.

EMMA EAMES CHASE, Corresponding Secretary.

DENTAL DEPARTMENT OF THE UNIVERSITY OF BUFFALO.

The seventh annual commencement exercises of the above institution was held at Music Hall, on Tuesday evening, April 26, in the city of Buffalo, N. Y., in connection with the departments of medicine and pharmacy, when *sixty-six gentlemen* were graduated as Doctors of Dental Surgery, upon the recommendation of the Faculty; these having complied with all the requirements which entitled them to the degree. Of the number, 45 were from the State of New York; 18 from Ontario, Dominion of Canada; 2 from Pennsylvania, and 1 from Ohio.

BOOK NOTICES.

INSTRUMENT NOMENCLATURE WITH REFERENCE TO INSTRUMENTATION.

By G. V. Black, M. D., D.D.L., Sc. D., Chicago, Ill.

We have received from the National School of Dental Technics the above pamphlet, which is an effort at the naming of all the instru-

ments employed in the various operations which the dentist is called upon to perform.

It is a classification of these, and is a farther exhibition of the care, industry and earnestness of Dr. Black to reduce everything to system and order.

While other men are playing billiards or cards or riding bicycles, this good man is laboring hard for the benefit of the profession of his choice. What industry! How does he find the time to accomplish all he does?—ED.

CATAPHORESIS OR ELECTRICAL MEDICAMENTAL DIFFUSION AS APPLIED IN MEDICINE, SURGERY AND DENTISTRY. By William James Morton, M. D., professor of diseases of the mind and nervous system, etc., etc., etc. New York: American Technical Book Co., 45 Vesey St. 1898.

We have had Cataphoresis with us now for over two years. Indeed, we think that the experiments of Prof. Morton were first given before the First District Society of the State of New York, in February or March, in the year 1896. Since then innumerable appliances have been put on the market for the production of insensibility in the preparation of cavities in painful teeth, the removal of pulps, and the bleaching of discolored teeth by electrical osmosis. Those who have used it report most gratifying results, and the time which was required to produce this insensibility, which was one of its drawbacks, has, by later reports, been greatly lessened.

Cataphoresis is no longer experimental, its results may be counted on as certain, at least so far as manipulation in dentistry is concerned, and to those who may be still unacquainted with its effects, appliance and mode of action, a book, in which all that is known about it, up to this present writing, is a valuable aid to the filling procedure. This is more particularly emphasized when this book is edited by Prof. Morton, whose lucid description and experiments tended so much to bring it to the attention of the profession.

We commend the work to all who would learn about Cataphoresis, as well as to those who know all about it.

It is a handsome volume, well gotten up, well edited, well printed. The type is large, distinct and clear, and this makes the volume delightful to read, while its size is little larger than a manual.—ED.

THE AMERICAN DENTAL WEEKLY.

We do not know of any dental journal which is published weekly. The *British Journal of Dental Science* appears every two weeks. We know the trouble and care it gives, even to prepare and select matter for our issue, which appears only every *two months*, and can fully appreciate the care of a monthly journal, and still more a weekly.

When the *American Dental Weekly* first appeared, although we knew of the indomitable industry and perseverance of Dr. Catching, we felt it would be short-lived. But the journal continues to come despite our inward prognostications, and moreover is always well-filled with short readable articles. Every Monday morning the postman leaves the journal. Rain or shine, storm or snow, it comes to hand, so we may say with Julia in the Hunchback, by Sheridan Knowles :

“I have seen the snow on a level with the hedge, yet still came Master Walter.”

We wish all success to the *Dental Weekly*, and trust it may have a long and prosperous life.—ED.

SELECTED ARTICLES.**FORMALDEHYD IN CONNECTION WITH ESSENCE OF GERANIUM IN DENTAL THERAPEUTICS.**

In a paper recently read at the Society d'Odontologie, at Paris, M. S. de Marion spoke very interestingly of his experience in the use of formaldehyd in connection with the essence of geranium in the treatment of dental caries.

The choice of a good antiseptic in the treatment of caries of teeth, he says, is yet one of the main prejudices of the dental profession. None of our antiseptics have given entirely satisfactory results, because the physical structure of the teeth prevents the entering of same under ordinary circumstances, the dentin being saturated with saliva and serum. Experiments have proven that creosote, thymol and many others do not combine with water or saliva, but are simply suspended in the same as little globules and cannot therefore act as antiseptics.

A good antiseptic must be soluble in water, it must be diffusible in order to sterilize the liquid contents of the dentinal canaliculi, and lastly, it must have no bad effect on dentin. Formaldehyd is the first antiseptic having each of these properties. Its action is as follows :

All animal matter, in this case the pulp, disintegrates in the presence of air and its nitrogen and carbon form ammonium salts and carbonates respectively. As chemical disintegration goes on, the ammonium salts being very diffusible, saturate the dentin. Formaldehyd brought in contact with the disintegrating pulp has the tendency to form compounds with ammonium and the carbonates.

As a result of it, formaldehyd is chemically and antiseptically naturalized and absorbed. The process of disintegration goes on until the disintegration is complete by addition of more formaldehyd. Then its antiseptic action on the pathogenic microbes begins

The sterilization of caries is a perfect one, but somewhat slow. M. S. de Marion has had excellent results with the addition of the essence of geranium to stop disintegration of putrid matter at the beginning. All ethereal oils, with exception of this essence, cause soreness and pain of the peridental membrane. Essence of geranium put on the tongue has no burning effect, it has a mild and agreeable smell, stops caries instantly, and diminishes the necessity of applying formaldehyd too frequently.

M. de Marion's antiseptic treatment of putrid root-canals is as follows: He opens the pulp chamber as usual and cleans that as well as the canals of all putrid matter. Formaldehyd is then introduced on shreds of cotton and evaporated with a heated silver wire. This treatment is repeated two or three times at same sitting. A temporary dressing is now made of cotton shreds saturated with formaldehyd and geranium, and the cavity is closed air tight, with wax or gutta-percha. Two or three days afterwards the same treatment is repeated. The essence of geranium serves to find out any putrid matter; left in contact with the same, it changes its mild and agreeable smell, and only when the latter is pure a permanent filling can be inserted.

F. A. B.

USES OF PYROZONE.

I have found pyrozone very useful in the insertion of all kinds of crown and bridge work. We all know that bleeding of the gums gives us great trouble in these operations. I obviate this by applying a 25-per cent. solution of pyrozone to the gums, which acts as a styptic, and in my hands has never resulted unhappily. I also use this remedy in the same manner for the insertion of gold fillings at cervical margins, one or two applications rendering the gum perfectly

dry for ten or fifteen minutes, which is ample time for the insertion of an ordinary filling. In the case of abscess with fistulous opening, I use a 3 per cent. solution inserted with a hypodermic syringe, forcing the solution through the fistulous opening, and I find that its use is not as painful as that of proxide of hydrogen. In all cases in which the alveolus has been perforated by the progress of suppuration, and the soft tissues have not yet sloughed, I advise free lancing over the congested parts, and the insertion of a pledget of cotton saturated with a 25 per cent. solution, which should be allowed to remain for a few moments.

For a putrescent pulp, I apply a 5 per cent. solution of pyrozone, which at once disinfects, permitting the removal from the canals of disorganized tissue, without the disagreeable odor which is often so offensive to both patient and operator.

I also use pyrozone for the removal of green stains on teeth, due to organic causes. I use a 3 per cent. solution for this. Apply it with an atomizer, spraying the teeth. I find that this treatment is most efficacious, and also the most pleasant to patient and operator.—
DR. WETTLANFER, *Dental Practitioner*.

SILVER AND THE SILVER SALTS, AND THEIR USE IN DENTISTRY.

Though modern surgery has turned from antiseptis to asepsis, the former is by no means superfluous. Asepsis cannot be obtained in many conditions in which the external circumstances are such that microbic infection cannot be prevented, or where it has already occurred. Moreover, antiseptis often gives us quicker and better results than does asepsis. Especially is this the case in the mouth, the field of our special labors, which is a perfect culture oven of exogenous and endogenous micro-organisms, and where aseptic procedures are entirely inapplicable. We dentists are compelled to rely on antiseptics; and if I propose a new one to you, and recommend it most warmly, it is because of the good results that I have obtained with it in various departments of our specialty.

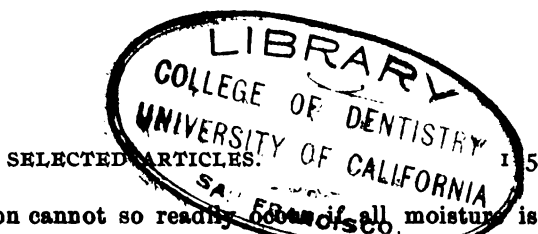
The ideal antiseptic must possess the following properties: It must be harmless, non-poisonous and non-irritating; it must be fatal to all pathogenic spores and microbes; it must have no deleterious or destructive effect upon the tissues; it must be in a form that renders its application possible in the most difficult localities; and, finally, it

should be sufficiently far-reaching in its effects to penetrate the deeper tissues and destroy the germs that may have penetrated to them. None of our previous antiseptics fulfil these conditions. Crede believes that two new ones, the Citrate of Silver and the Lactate of Silver, really do so; and his conclusions are confirmed by those of Halsted, Beyer and others. His bacteriological and clinical experimentation in the Carola Hospital of Dresden, have given most surprisingly good results.

We dentists are well aware of the fact that the precious metal, in proper form, hinder the growth of the schizomycetes; that gold fillings are more resistant and more durable than others. I, with Miller, ascribe it in part at least to this fact, though something may be due to the greater care with which fillings of the precious metals are made. Gold plates are better borne by the oral mucous membrane than those made of hard rubber. It seems to be proven that various metals, more especially mercury, silver, gold have antiseptic properties; whilst zinc, lead, and iron seem to be quite powerless in this regard. The laboratory experiments and clinical researches of Crede and Beyer were so entirely satisfactory that I resolved to try the new antiseptics in dental work. In the sterilization of root sinuses I thought that they would be specially useful. My trials were made upon teeth with freshly killed pulps, as well as upon those in which the pulps had become gangrenous, and include about 100 cases. And I may state at once that my hopes were not disappointed. The results that I have obtained during the last half year have been entirely satisfactory to me, and I can recommend these preparations to my colleagues in the very warmest manner.

I directed all the patients that I treated with the silver salts to return to me at once, as soon as any pain occurred in the teeth that had been treated. Up to the time of this present writing only three have reappeared with periostitis; and in two out of these three the defects in the molars were distal and difficult to get at.

My method of root treatment is the following: I open the pulp cavity with a suitable trephine, and if the pulp is gangrenous, clean it out as thoroughly as possible with a thin probe. Then I thoroughly and repeatedly inject out the root canal with a freshly prepared and dilute solution (1-2000) of the Lactate of Silver. Then I apply the rubber dam, dry the cavity carefully with cotton, and then thoroughly with the warm air injector; to the completeness of which procedure I attach the greatest weight. For I believe that even if dead nerve tissue remains behind, further decomposition and the development of



the gases of putrefaction cannot so readily be removed, if all moisture is thoroughly removed, and the mummification of whatever of nervous tissue is left behind is effected. Here the powdered Citrate of Silver is of especial value, since it not only permanently disinfects the decomposition products that remain, but acts as a dessicant also in consequence of its powdered form. As is well known, the difficulty in the sterilization of the root canals depends on the difficulty of thoroughly applying the antiseptic to it. I believe that it is best done by applying the Citrate through an insufflator, to the nozzle of which a rubber tube with a very small orifice is attached; this permits the application to be made to all the sinuosities even of the distal canal.

The pulverization is fairly forcible, and if the lumen of the canal is sufficiently large, I do not doubt that the particles of the drug reach the very ends of the sinuses. If the insufflator does not seem to have effected this, I apply the powdered Citrate to the depths of the canal on a thin probe.

Recently-killed pulps I usually fill at one sitting, simply dusting in the Citrate after opening the cavity with a sterilized bur and filling with tin or gutta-percha in the usual manner. When the root canals are putrid I deem it necessary to make two or three applications and insufflations of the Citrate or the Lactate before proceeding to the permanent filling. Is surprising to see in most cases that after the first introduction of the silver salts the odor of decomposition entirely disappears. I have seen no discoloration of the teeth in the cases that have returned to me; it is true, however, that they were all molar cases. Only the cavities were colored black. Irritation symptoms after the applications were never noticed.

I do not claim that this method of the treatment of roots is the only proper one; for there are almost as many different methods as there are practitioners of dentistry. But with these antiseptics I have formulated a suitable and effective method system of treatment.

In conclusion, let me state that I have used the silver preparations in various other diseases. I have used the grey silver gauze in one case of empyema of the antrum of Highmore, and as a tampon for the hemorrhage following extractions, and also the dilute solutions as gargles in stomatitis; and I have obtained like satisfactory results with them.

The comparatively small number of cases over which my experience extends are too few to base a final judgment on. But the good results certainly enable me to recommend that these silver salts be exten-

sively experimented with and tried by others, and I should be glad to stimulate those of my colleagues who have not yet used these antiseptics to do so.—M. HILLE, in *Monatsschrift für Zahnheilkunde*.

DENTAL REMEDIES.

BY DR. C. G. EDWARDS, LOUISVILLE, KY.

Read before the Kentucky State Dental Association, June 16, 1897.

In the classification of remedies it is difficult to arrange them completely, according to their action on the principal functions.

Of the various groups of medicines, I shall only treat of those which we as dentists are the more directly and practically interested in.

ERGOT.

Ergot, by reflex action, produces active contraction of involuntary muscle fiber; it therefore acts on and contracts the smaller blood vessels, and its administration is indicated in persistent hemorrhage from the gums, and alveolar hemorrhage after extraction.

CANNABIS IND.

Cannabis Indica is like opium; in large doses, a narcotic poison, its effect is anodyne. As a topical remedy for preventing pain in extraction, I have used it for more than ten years with very gratifying results in many cases; its action, however, is not entirely reliable. It may be applied on pads of cotton to the gum on each side of the tooth for five minutes before operating; in all cases the gum should be dried before making the application.

EUCAINE.

The public attention which has been attracted by cocaine renders it unnecessary for me to notice it here except by comparison with a new and rival substance called eucaine. While cocaine is an alkaloid of the leaves of coca, eucaine is an artificial or chemical product. There is no chemical difference between the two substances, the only important physiological and therapeutic action being the difference in their toxic effect. I have used eucaine for more than six months, and have extracted more teeth in that time than I had for several years previously. I extracted nine and eleven teeth, respectively, for two patients at one sitting, using two syringes full on each subject, one a lady of highly nervous temperament and light weight. The strength

of the solution was five per cent. No unpleasant or toxic effect was noticed, and no complaint was expressed by the patient.

Another advantage which eucaine possesses over cocaine, is the more permanence of the solution, and while cocaine is decomposed by boiling the solution for sterilization, eucaine is not. I have kept a solution of the latter for two months and found it as energetic as when freshly made, though in every instance I boil it before using. In reading very many recent reports from the pen of general and dental surgeons, I find expressed a universal and positive opinion in favor of eucaine, as to its equal efficiency in pain-obtuding power, and its very decided freedom from the toxic effects so frequently occurring with cocaine. The only unpleasant effect so far noticed is swelling or puffing of the tissues, in some cases the swelling extending to the cheek or lip; this is unaccompanied by pain or inflammation, and subsides in twenty-four hours.

ACONITE.

Aconite is one of the most valuable of known agents in controlling inflammation, as it lessens the force and frequency of the heart pulsation, lowers arterial pressure, reduces the temperature, and stimulates intestinal, cutaneous and urinary secretions. In pericementitis, and in the early stage of alveolar abscess, especially when attended with high temperature, it is a valuable remedy administered internally until its physiological effects are exhibited. Watchful care must be observed in the administration of such a powerful depressant remedy.

Aconite, in conjunction with other remedies, notably iodine, is a well-known topical remedy for pericementitis.

OPIUM.

Opium, a narcotic poison in large doses, and an anodyne, is unrivalled for relief of pain, and is a powerful abortor of inflammation. There is absolutely no remedy equal to it to relieve pain and induce sleep; by this action it controls nervous and vascular irritability. Opium also has sedative power when locally applied, as well as when internally administered.

PAPINE.

Quite recently a preparation from opium has been introduced, called papine. It is said to have all the anodyne properties of opium, with the narcotic and convulsive elements eliminated, one fluid ounce being equal to one-eighth grain of morphia.

AMMONOL.

Many new remedies for the relief of pain have been brought out, notably those derived from coal tar, salol, codeine, phenacetine and ammonol being some of the principal ones, all of which possess sedative and pain-obtuding properties, and probably curative effects. Ammonol in ten grain doses, repeated if necessary in an hour or two, has gained considerable favor for the relief of pain in pericementitis, and alveolar abscess; curative properties are ascribed to it by some practitioners. If such is the case, it must stimulate and promote the secretions, especially the lymphatic glands.

POTASS. IODIDE.

There is another group of remedies, classed as alteratives; agents that produce waste of tissue, destructive metamorphosis. Their function is to modify morbid processes and aid in removal of abnormal deposits by stimulating certain organs and glands to increased activity. These include the salts of potassium, sodium, lithium, ammonium, and mercury. I have used potassium iodide as an alterative in the treatment of pyorrhea alveolaris with very gratifying results, continuing the treatment for weeks after the surgical and local treatment was finished. Potassium salts are diuretic and antacid, and are used especially in the treatment of diseases supposed to be due to insufficient oxidation of the blood-products, or to deficient excretion.

LITHIUM.

Lithium carbonate and lithium citrate have become popular in the systemic and local treatment of pyorrhea alveolaris, as well as other affections supposed to be the result of deposits of the urates in the affected tissue, which is the case in the gouty diathesis.

MERCURY.

Mercury has long been employed not only as an alterative, but as a purgative in catarrhal conditions of the intestinal mucous membrane. It is a reliable purgative, and this therapeutic action is often desirable in threatened alveolar abscess. Its action on the liver, with its well-known stimulant action on the lymphatic glands, augmenting their elimination of effete products of inflammation, is a very important factor in controlling the disease, and hastening its termination by resolution.

If dentistry is a specialty of medicine, there can not exist a defined line dividing the practice. They must merge one into the other,

lapping and dovetailing here and there ; therefore, we should be fully equipped with a knowledge, not only of the fundamental principles of medicine, but that science which treats of morbid anatomy and physiology, and the application of remedies for relief. There never was a more active period than the present, when the chemist exerted so much energy and intelligence in producing new remedies for the cure of disease and the relief of pain, and in compounding the old and the new into new and convenient forms for administration.

WALKING ERECT.

Very few persons walk well. Most of us, if we accept the evolution hypotheses, still retain some of the gait of our apish ancestors. The tot-toddlekin as he begins to balance himself on two feet sways from one side to the other, variably like a monkey. The little girl of six summers, with her pretty new dress on, walks as straight and elegantly as ever she will. Her little feet are thrown forward with an elasticity peculiar to that age. The little girl of thirteen begins to be careless, bends her back forward, and goes diving into the school-room as if she were going to swim. At sixteen, she steps along with short steps, striking her heels hard on the floor with a don't-care-for-nobody sort of walk. At eighteen, she thinks more of gait, and tries to recall that of her earlier childhood. The boy of eleven, with his new thick boots, plants his foot like a soldier, and never knows that his boots disturb anybody. Many children are taught at home and at school to walk on their toes. This will do in a sick-room, when one has squeaking shoes, but it is not natural or elegant. Put the heels down lightly at first, and the toes last ; this keeps the body erect, instead of bending the body forward as a person must bend who walks on his toes.

Walking should be more thoroughly taught in our gymnastic schools. Dr. Dio Lewis made a specialty of it in his training school in Boston, but his successors have done little to perfect his methods. —*Jour. Hygiene.*

BREATHE PROPERLY.

Do you know what an "active chest" is ? Probably not, answers a writer in the *New York Tribune* ; but your chest ought to be active—that is, lifted up—two thirds of the time you are awake. Stand up and take a long breath, as long as you can ; now lift your

chest; keep your chest up while you go on breathing by movements of the abdomen and the muscles at the side of your waist. A very slight movement is all that is necessary for normal breathing; but now you have let your chest fall! You are so tired you can't hold it up! That shows a very bad, unnatural state of things; the normal human being, whenever he is not relaxed, walks with his chest up, and when he talks with vigor or interest, it is with his chest up; and you can't hold up yours three minutes without fatigue—you can't do it at all, for five! Do you know that the preservation or achievement of a round, slender waist will be your reward if you will strengthen your muscles and learn to keep your chest up? It will certainly, except as you become hopelessly fat, and even then good breathing will do much to preserve some good outlines in your figure. Proper breathing and the habit of keeping the chest up will keep all the internal organs in their proper place and keep them from spreading the waist in any way that is unsightly, and shows not Greek health, but deficient vitality. The first thing is to get so you can hold the chest up. Walk across the floor three times, holding up your chest (just as you do when you try to fasten a tight skirt band), at the same time breathing deeply from the abdomen. After the three times you are exhausted; rest and try it again; to-morrow you can, perhaps, do it four; don't tire yourself, but keep at it till you have strengthened the muscles that hold your chest up, just as you would strengthen the muscles of your arms, with use. Always practice out-of-doors or with your windows up; there are many good breathing exercises and but few can very well be conveyed in print; but the main thing is very simple; breathe with your chest up, and keep on doing so till you do it naturally, all the time that you are not relaxed in rest.

One good exercise that can be taught is to simply stand and take as long a breath as you can, chest well up, and then hold it as long as you can. This exercise used for a few minutes every day is most beneficial, and physicians recommend it for strengthening and expanding the lungs.

Professor Tyndall said that, as a broad, general rule, any air out of doors was better than any air indoors. Breathing exercises are most effective outside the house, and generally they are not conspicuous even on a city sidewalk.—*Scientific American*.

PRACTICAL PLACE.

AN ALLAYER OF PAIN, AN ANTISEPTIC AND A LOCAL ANÆSTHETIC.

Dr. S. C. G. Watkins, of Montclair, N. J., said at a meeting of the First District Society of the State of New York: "A few months since I reported before this society my experience in the use of *ammonol* for allaying pain in cases of pulpitis and periostitis. I now wish to make a farther report of my experience of its use in similar cases up to this time. In nearly all such cases I am able to control the pain and comfort the patient. The following will, I think, illustrate its efficiency: A patient complained of soreness in the upper front molar, which had been crowned; she had been kept awake for several nights, and was unable to locate the pain positively, though it was in the tooth which had the gold crown on. I administered fifteen grains of ammonol, and directed her to take ten grains each hour until she had taken three or four doses, unless the pain was relieved sooner. After taking three doses she was entirely relieved, and had a good night's sleep. About four o'clock in the afternoon of the next day the pain returned. I again administered ammonol in the same way, and as a result all pain ceased, and the patient had a good night's sleep. The following day, towards evening, the pain returned. I then examined the case carefully, and discovered a large cavity in the posterior surface of the second bicuspid, with exposed pulp, which faced the gold cap. I applied a temporary dressing for two or three days, using ammonol as a sedative. I then capped the pulp and filled the tooth with oxyphosphate without pressure or causing any pain. Next day the toothache followed, and to quiet the pain I again resorted to ammonol, which acted just in the same way that it had previously, so that she lost no sleep, and never suffered more than an hour or two at a time.

In this case I presume the pulp was congested and dying. I have described it for the purpose of showing how we can control pain, which has baffled us all in the past, with a simple remedy, and I hope others will use it as I have, and be able to report similar good effects.

Another preparation is tripromphenol-bismuth, an antiseptic to take the place of iodoform. It is non-irritant and soothing in its action, and has none of the unpleasant odor of iodoform. I have used it in many cases with uniform success, and am quite confident that it will reduce inflammatory conditions in the treatment of pulpless teeth. I used it in conjunction with a liquid antiseptic. I have used trikresol, formalin, oil of cinnamon, and other liquid antiseptics with

it by pumping it into the canal to its entire length. I rarely treat a tooth but once.

When the canal is filled with the tribromphenol-bismuth in pasty form, the canal is filled with a rope of cotton, the cavity filled with gutta-percha, and allowed to remain a week or two, or longer, until all inflammation has passed away and the tooth has recovered; it is then filled permanently at the next sitting without farther treatment. Tribromphenol-bismuth seems to hold its strength; will not deteriorate or change. I have seen it for several months at a time in a canal, and when removed it seems to be as sweet and pure as when placed in the cavity.

As a local anæsthetic for the extraction of teeth, I have been using of late a new preparation of eucain, called eucain B, which is superior to the ordinary eucain A—it is stronger and less irritating. The toxicity of eucain B is much less than eucain A, and very much less than cocain.

With eucain A I use a seven per cent. solution; with eucain B not more than a four per cent., and it is said that a one or two per cent. would be sufficient. I would inject a quarter of a syringe-full on each side of each tooth, and then wait for a minute or two for anæsthesia to take place before extracting. I have used it quite freely, and have not seen any bad effects from its use.

SILVER NITRATE IN SUPERFICIAL DECAY.

While this is not a new subject, yet is not old enough for all that is good about it to have been said. We make extracts from some remarks reported in the *Stomatological Gazette*. Dr. Cox says there are many cases where a patient will come, showing a little white streak just above the border line of the gum on the buccal surface of the molars or bicuspid. It is simply superficial. My advice in those cases is not to put on the rubber-dam, but simply a napkin in the mouth to keep the moisture from the teeth, dissolve a little nitrate of silver, rub it on that streak, and play hot air from the syringe on it, and notice the result.

On the same line D. Van Orden suggests, in addition to the above, to paint the gum with tincture of iodine, which will form iodide of silver, and it is quite an important addition for preventing the spreading of nitrate of silver. It can be very easily done. Take little pellets of cotton, roll the cotton and paint the tooth. Have a good supply of these at hand, lay them on a little glass slab, several of

them, in case of necessity, so that they can be applied to the tooth.

In treating many cases of third molars, Dr. Whitney makes use of silver nitrate. He says when excavating a third molar, at first you think there is very little decay; then, as you go on, you find this white condition extending on and on, and finally, perhaps, the whole buccal surface has been cut away. Now, in such a case as that, when a tooth is in that condition, I always, before putting any filling in, saturate that with nitrate of silver, unless it is quite near the pulp. In that case I cap the pulp with cement, and then use it about the border, and I have had excellent results in that class of filling.

A new way of applying the silver solution is reported by Dr. Bliss, as follows: In the preparation of nitrate of silver for superficial decay, I dissolve it in alcohol, then place in the solution particles of asbestos, not powdered, but the coarser kind we usually have in the market; afterward drying the particles of asbestos. It can be applied very easily. I also find it better to apply the rubber-dam before applying the nitrate of silver, and wait fifteen or twenty minutes, or perhaps longer.—*American Dental Weekly*.

MIXING ALLOYS.

Dr. Black says: I do not care how you mix your alloys for filling, provided certain rules are employed. The first rule is this: the more tin you have the less trituration you should give it. The more silver you have the more trituration it demands, for the reason that the alloys with large proportions of tin dissolve in mercury much quicker than alloys with small proportions of tin. You should not manipulate or chop up your alloy in your cavity with your instrument. After you have once squeezed it out you want direct compression of it, hence fillings rubbed in with a burnisher are never so strong as fillings pressed in with a broad serrated point. Furthermore, I would say that I never wash amalgam.

Dr. Black says mercury is in no way responsible for the shrinkage of amalgam.

This is not the general opinion.—Ed.

It is thought best to file the alloy up from the ingot as it is wanted.—Ed.

STICKING STOPPERS.

To prevent the annoyance of sticking stoppers in varnish bottles, coat them with glycerine.

SUCTION CAVITIES.

Suction cavities should be used in but few cases; the plate should fit by adhesion of contact, atmospheric pressure.

AN INTERESTING CASE.

I would like to report the following peculiar case which occurred in my practice recently. The patient, a young lady of excellent health, presented herself for the treatment of a second left superior bicuspid. Arsenic was applied and the cavity sealed with cement. One week intervened before I saw my patient, at which time the pulp in the crown of the offending tooth was removed. That which remained in the canal showed unmistakable signs of life, and arsenic was again applied on a few fibres of cotton and sealed as before.

Owing to failure on the part of the young lady to keep her appointment, she did not visit my office for two weeks. I examined the tooth and found it somewhat loose in its socket; removed remaining portion of the pulp and treated canal with carbolic acid; saw patient two days later; tooth had grown looser; three days later patient presented with tooth ready to drop out. I removed the tooth with my fingers without the slightest force; the tooth was white and clean; no hemorrhage followed the extraction, and the root was devoid of membrane; a probe introduced in the socket elicited no painful sensation whatever; burred the socket out to the depth of a thirty-second of an inch and treated. Neither the gum adjacent nor the mucous membrane was affected in the least by the arsenic; wound healed readily.—DR. W. E. DIEFENDERFER, in *Dental News*.

TO CONTROL HEMORRHAGE AT APEX OF ROOT AFTER REMOVAL OF PULP.

Wet a needle of bibulous paper in bichloride of mercury and insert in canal. Will control hemorrhage every time.—J. Y. CRAWFORD, in *Alabama Dental Association*, 1897.

THE DISCOVERY OF SAL AMMONIAC.

The inhabitants of the deserts of Lybia were, in olden time, inadequately supplied with common salt; their alchemists accordingly manufactured a substitute from camels' dung and named it *Sal Ammoniac*—"Salt of Ammonia"—in honor of Jupiter Ammon, whom they worshipped.

ATHLETICS VS. FRESH AIR.

What a man of to day needs most is not athletics in a gymnasium, but plenty of fresh air in his lungs. Instead of a quantity of violent exercise that leaves him weak for several hours afterward, he needs to learn to breathe right, stand right, and sit right. The young man or young woman who starts on a career of training and keeps it up year and year, just at the time when the body has a great deal of its own work to do and wants to do it, may make up his or her mind that beyond a showy and superficial development of muscle and strength, all this training in after life is going to count against them. —*Annals of Hygiene.*

DENTAL EDUCATORS.

It is not too much to say that our professional reputation must be what our colleges make it. We are the educators of those who are to be the leaders in the future. The next generation of dentists will be what we shall make it. Legislators may pass laws to regulate and restrict dental practice, but the stream can rise no higher than the fountain head, and the practitioner of to-morrow must get his training and derive his professional knowledge from the school of to-day. He must enter the profession by submitting himself to our guidance. The colleges are the fountain head, and the stream will be limpid or foul according to whether we purify or contaminate it — W. C. BARRETT, in *International*.

HOW ONE MANICURE READS THE NAILS.

People of bilious temperament have red and spotted nails, and so do martial men, delighting in war. Where you see these red nails you may be sure that the person possessing them is easily irritated, though apt to get in a good humor just as easily.

There is a superstition to the effect that white marks on the nails denotes misfortune, but there is nothing in it. These white marks that schoolgirls call beaux merely show that there is too much acid in the system.

People with very pale nails are subject to much bodily infirmity, and if you observe them closely you will find that they always have a grievance. —*Exchange.*

FOR SENSITIVE DENTINE.

When the sensation in a hyper-sensitive tooth is being complained

of as unbearable, the application of one-tenth of a grain of the citrate of cocaine will yield gratifying results.

HOW TO TAKE IMPRESSION OF MOUTH WITH UNDERCUT TEETH.

In taking impressions of mouth, where teeth are undercut so much that a "drag" is likely to result, I find the following method answers perfectly: Syringe and cleanse the undercut tooth, mix some plaster of paris thin, fill up the undercut with it, allow the plaster to harden, and then trim up; smear the plaster with a little vaseline, then take the impression, and afterwards remove the plaster from the undercut, which has remained.—*Ohio Dental Journal*.

RECEPTACLE FOR DIRTY BURS.

Take any suitable small vessel, cup or box, nearly as deep as the length of an engine bur, fill it nearly full with small shot. When using the engine burs, instead of laying the used or dirty ones on the table, stick them in the shot. It keeps them bright so far as the shank is concerned, and the office attendant knows that all burs in the shot have been used and are to be cleaned.—JAMES G. PALMER, New York.

STROP FOR BURNISHERS, SPATULAS, ETC.

Dr. Gordon White, of Nashville, makes a strop for burnishers, spatulas, etc., by gashing a thick piece of sole leather and filling with pumice-stone. With this strop the instruments named can be easily polished.—*American Dental Weekly*.

SHOCK.

In case of shock a hypodermic injection of strychnia, containing one twentieth of a grain of the sulphate, should be immediately administered, and repeated every half hour until three doses are given. Then the same quantity is injected every four hours, until the patient has recovered from the shock. If he recover at any time previous, the injections are discontinued. In chloroform narcosis an injection is given immediately prior to the administration of the anæsthetic, and the same rules followed as in the case of shock. There is no choice as to the point at which the injection is made. Any portion of the integument which is convenient will do. It is only necessary

to be careful that the injection is properly made and the full dose administered.—*Exchange*.

EUCALYPTUS TOOTH PASTE.

Precipitated chalk.....	160	parts.
Powdered soap.....	45	"
Wheat starch.....	45	"
Carmine.....	1	"
Oil of peppermint.....	2	"
Oil of geranium	2	"
Oil of eucalyptus.....	4	"
Oil of clove	1	"
Oil of anise.....	1	"

Mix, and mass with equal parts of glycerine and alcohol.—*Pharm. Post.*

WISHING AND TRYING.

Wishing does nothing ; trying does everything. Your education would never be accomplished by wishing ; it is only by trying that we succeed in what we wish to obtain.

IGNORANCE.

Ignorance was carried away from the very gates of Heaven, borne through the air and thrust in at a door in the side of a hill, where the steps led down to hell. But give ignorance time and if earnestness be the incentive ignorance will become knowledge.

THE FOLLY OF PRIVATE INTERPRETATION.

Laws are made, and it is intended they should be obeyed in the sense they are enacted, not in the sense of the private judgment or interpretation of each individual. Why, then, should it be when God—who is the great law giver—makes a law for our moral guidance, that we should interpret it to suit our ideas?

DIFFICULT PARTIAL IMPRESSIONS.

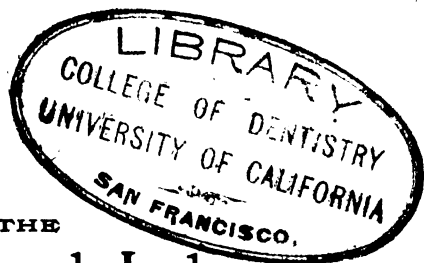
Several weeks ago a lady presented, desiring a partial upper denture. An examination of the oral cavity revealed a V-shaped arch

with several sound teeth, posteriorly and anteriorly. Wherever possible I prefer taking plaster impressions in partial cases; I, therefore, proceeded in the usual manner to get a plaster impression. The teeth were at unfavorable angles, seriously interfering with the work. After several unsuccessful attempts and spending considerable time in trying to patch together broken pieces which were more intricate than a Chinese puzzle, I hit upon the following method: That portion of the plaster which came out intact, viz, the palatal surface, festooning teeth lingually, and partially covering the ridge where teeth were absent, I replaced carefully in the impression-tray, flowing *very* soft plaster where the first impression had been imperfect. I next passed the tray and plaster quickly into the arch, retaining it in position until the new plaster had set in. The cup was then easily removed, the new plaster fractured cleanly and in large pieces, some, however, remaining cemented to the original impression, making it a simple task to reunite the whole. The result was a perfect model of all the teeth, ridge, palatal surface, and condyles, from which I made a well-fitting plate.—HOMER HEBERLING, D.D.S., in *Items of Interest*.

We think it would have been better and more certain if the palatal part of the fractured impression had been replaced in the mouth and fresh plaster put into the impression tray, and then an impression over this taken. It is difficult in passing an impression, in the way suggested, to get the first impression in exactly the same place. What would prevent the new plaster added to that replaced in the tray from running over the former impression when it was carried to the mouth and pressed into place?—ED.

REMEDY FOR CORNS.

Dr. Sofshue says linseed oil is a sure remedy for both hard and soft corns. If they are indurated and very painful, the relief it gives in a short time is most grateful. Bind on a soft rag saturated with linseed oil, and continue to dampen it with the oil every night and morning till the corn is removed easily and without pain.—*Science News*.



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PETER FAUCHARD. 1728.

Peter Fauchard, surgeon-dentist, was born in Brittany about the end of the 17th century, in 1690, and died at Paris on the 22d of March, 1761. He studied his profession under Alexander Potileret, who was surgeon general of the navy, and established himself at Nantes, where he soon obtained a reputation so extensive as to call him to Paris. The practice of dentistry had almost entirely been relinquished to the hands of ignorant and unscrupulous men, and to quacks; but Fauchard possessing superior talents, his acquirements soon brought him in the front rank with men of intelligence and made him celebrated even in the French capital. The observant nature noticed in this man, even in his earliest youth, made him reflect that up to this time, the science of dentistry was transmitted, if one may use the expression, only by oral delivery and by manual exemplification. He entered upon the theory of the diseases of the teeth and the operations necessary to them, and a work *ex professo*, published for the first time at Paris in 1728 under the title: "The Surgeon Dentist, or a Treatise on the Teeth wherein is taught the means of properly caring for them and keeping them in a healthy condition, to embellish them, to supply their loss, and to cure their diseases, as well as the diseases of the gums and the accidents which may unexpectedly attack neighboring parts or teeth, illustrated with 42 engravings on copper plates, in 2 vols., duodecimo," was put forth by him.

This book was reprinted in 1746, and, after the author's death, again in 1786. On its appearance it gained the approbation of anatomists, physicians and surgeons of the greatest intelligence, and holds even to this day the reputation it commanded then. The imperfections which are now seen in it, attest the progress which the art of dentistry has made; but the work will nevertheless be consulted with advantage by all those who would be, like Fauchard, good dentists. Before the publication of this treatise there was no work which explained the manner of filing and shaping the teeth, of filling and cleansing the

teeth; the art of constructing artificial teeth was not explained, simple or complicated dentures had not been written about; and the making of obturators covering palates, defective by disease or congenital malformation, was unrecorded. Fauchard described with singular exactness the abscesses which attack the internal parts of the teeth without changing their cortical or outer substance—doubtless alveolar abscess. We may regard him as a most inventive genius, a father of dentistry, a man far ahead of his time. The younger Mr. Sue, in his eulogy of Devaux, said that this clever writer was far from being useless to Fauchard in the editing of his work. From the works of the younger Sue we glean that Sue was quite an authority whose criticism is to be respected, nevertheless the criticism does not depreciate the value of Fauchard's work. Many men are capable of *doing*, few are capable of *expressing*, their ideas. This assertion, even though the help of Devaux were proved, would not in the least diminish the merit of Fauchard's inventive genius or his wise conclusions.

"Fauchard's work," says the medical Biography, "is an incontestable proof of his capacity as well as his deep research and profound knowledge in this branch of surgery which, unfortunately, seems to have been relegated exclusively to a crowd of men who were singularly deficient, actual exotics in the first elements of the healing art, and who followed, or aped each other, in the blindest practice. This work has been regarded even in our day, and with justice, as the best exhibition which we possess on the subject which it treats."

REMINISCENCES.

A PERSONAL CONTRIBUTION TO THE HISTORY OF DENTISTRY.

By THEODORE F. CHUPEIN, D. D. S., Philadelphia, Pa.

Sometime about the year 1823, as was related to me by my mother, there arrived in Charleston, S. C., a German dentist by the name of Eswine. Dr. Eswine had letters of introduction to Dr. Simmons, a physician of considerable repute and practice in the city, who referred him to my grandmother for entertainment.

I am not able to say how long Dr. Eswine remained in Charleston, whether his practice prospered, or relate much about him, more than the following: My mother related to me that she was sent to Dr. Eswine to have her teeth put in order, and that his bill was in part paid from the charges made by my grandmother for his entertainment. She also said that he was rather rough, both in his manipulation

as well as in his language; for while working for her, not finding her mouth wide enough open for his convenience he told her to open her mouth in not very select language. "*Ouvre ta guele*" (open your jaw), which he pronounced with the German-French accent.

About the year 1830—the year that I was born—a family arrived in Charleston, who had emigrated from Stockholm, in Sweden. The name of this family was Monefeldt. The family consisted of a widow, with several daughters and a son, whose name was William Stockton Monefeldt. My father, uncle, aunts, as well as my mother, her sister and brother became very intimate with the members of this family, all of whom were about the same age.

The coming to Charleston of this family, I have understood, was brought about by the merest chance. They had had the most terrific weather during their passage and had given over all hope of ever gaining land, but during a lull in the storm, the vessel being in a latitude between Charleston, S. C., and Savannah, Georgia, the captain asked his passengers which port should he make? One of the family finding on board a geography book, turned to the descriptions of South Carolina and Georgia, when the following sentence arrested attention: "Charleston is noted for the hospitality of its inhabitants." The poor family, buffeted about, as they had been by gale after gale for many weeks, longed for a haven of rest and the sentence seemed to respond to the yearnings of their hearts; thus the unanimous vote was "to make for Charleston."

Despite the boisterous weather, young Monefeldt conceived a liking for the sea, and for some years, I have been told, pursued the avocation of the sailor. What influence changed the trend of this fancy I know not, but during my apprenticeship with him in later years I learned that he had taken up the profession of dentistry, having been instructed in the art somewhere at the North; but in what State or with whom, I never learned. He told me the art of swaging plates on zinc dies and lead counter dies had been taught him.

Some time in the year 1832 Dr. Brewster arrived and established himself in Charleston. I was too young to have any personal recollection of him, and only knew of him by what I had heard related by my parents. He had taken rooms on King street—one of the principal streets in the city—not far from Queen street, over the jewelry establishment of Mdme. Boudo.

Here it was that young Benjamin Rodrigues, who had been a student of medicine with Dr. Frost, and who afterwards graduated at the

South Carolina Medical College, got instruction in the art of dentistry, with Dr. Brewster.

There were no dental colleges established at this early date, and the only means of instruction was obtained by private tuition.

Young Rodrigues showing a greater taste for mechanical pursuits than for medicine, offered himself to Dr. Brewster, and obtained from him instructions which fitted him for practice.

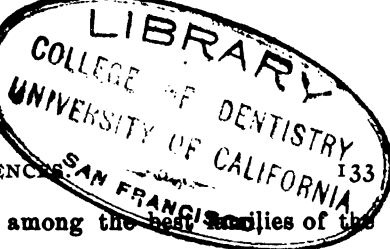
In a recent number (the December, 1897, number) of the "Items of Interest," Dr. Rodrigues Ottolinguì—a grandson of Dr. Benj. A. Rodrigues—presents the diploma which Dr. Brewster gave to him as a testimony of his proficiency.

Dr. Brewster did not continue for many years practice in Charleston. Whether this was from the fact of not finding business sufficiently active there, or because he had hopes of larger returns elsewhere, we hear of his resigning his practice to Dr. Rodrigues and establishing himself in Paris, France.

Among the patients for whom Dr. Brewster operated was young Middleton Michel. His father, Dr. Wm. Michel, had sent his son to Dr. Brewster to have such of his teeth filled as needed attention. Middleton Michel could not have been more than a boy at the time. In after years he took up the practice of medicine and became quite an eminent physician. He related to me that on the occasion of his visit to Paris, he called on Dr. Brewster but did not introduce himself, merely saying he had called for professional service. Dr. Brewster after seating him in his operating chair proceeded to examine his teeth, going into ecstasies over the work which he saw in his unknown patient's mouth. "By George" said he, "these teeth are well filled. I see but little to be done for you. Whoever you employed has done his work so well as to leave little for me to do. We find a pleasure to praise good work, and although it may not be polite to ask the name of your dentist, I think, when I have no fault to find with his operations, you may divulge it."

At this point Dr. Michel made himself known to Dr. Brewster and recalled to him how, when, and where he had himself filled his teeth in the office he had at the time, in Charleston, over Mdme. Boudo's store. There was a hearty laugh over the recital, with rather a blush over Dr. Brewster's face at his having lavished such praise on his own work.

Dr. Rodrigues and my preceptor, Dr. Monefeldt, were contemporaries. I remember the former well, he having operated for me, as well as



enjoying a very extensive practice among the best families of the city and State.

I imagine Dr. Monefeldt must have established himself in Charleston in the early forties—in 1843 or earlier.

His office was located on King street, over a druggist's store kept by a man named Oakley—not many houses removed from the one formerly occupied by Dr. Brewster. He soon established a fine practice and did excellent work. He was able soon to purchase a fine house higher up in the city but on the same street. He used the building for a residence and office, renting the store to a Mr. Moffat as a dry goods establishment. He never married, although a very handsome man. Whether this state was enforced by the circumstance of his wishing to do for his sisters, who, like himself, had been left orphans, I know not; yet I imagine this not to have been the case, since they, while young, taught as a means of livelihood, and all three of his sisters afterward married. He may have assisted them.

In 1847 I was placed by my father with Dr. Monefeldt to have him teach me dentistry. The Baltimore College of Dental Surgery had been established in 1840—but the intimacy existing between Dr. Monefeldt and my father no doubt prompted the latter to prefer the instruction that he could give me individually over what I could obtain in a class at the dental college. Besides those were the first years of the college, and being only seventeen years of age, my parents may not have been disposed to let me out of their sight.

My apprenticeship was passed for two or three years in the laboratory. It was the custom then to pay for instruction, but I know that Dr. Monefeldt never exacted any pay for what he taught me.

I never could fathom his idea of instruction; but for over a year I was kept at carving teeth out of pieces of ivory. He had, as many dentists at this time had also, a number of human teeth kept in bottles in strong brine, which I was told were obtained from corpses. One of these teeth, generally an incisor or cuspid, would be given me as a model, and I was directed to file, cut, scrape or grind the piece of ivory until I should have made as close imitation of my natural model as was I capable. Some of these early attempts, I recall, were "abortions." After this I was directed to fit a block of ivory to a plaster cast. This was accomplished in the same manner as it is accomplished now by the Chinese dentists. The model was painted with "India ink" and the block of ivory tried on. Whenever the India ink left a black mark on the ivory, this mark was cut out with gouges, scrapers or burs. This was continued until the block

was reduced to a pretty accurate fit, when the upper surface was filed so as to approximate it to a plate. On this plate human teeth were mounted. Such plates were retained either by ligatures tied to teeth adjoining, or by means of clasps riveted to the ivory plates.

I say I could not fathom his idea in keeping me at this, since this style of work had long since become obsolete in this country, gold and silver plates having entirely superseded it; unless it was to give me practice in the use of tools. Nevertheless it had the effect of making me skillful in carving, for about 1849 the South Carolina Institute for the promotion of skill in mechanical arts was established, whereat I deposited a specimen of "carving in ivory." This consisted of an upper and lower set of teeth carved from a solid block of ivory, which was considered so favorably that the judges awarded me a silver medal for it.

Charleston boasted at this time of quite a number of dentists. There was Dr. Rodrigues, Dr. Monefeldt, Dr. D'Alvigny, a Frenchman, who afterwards removed to Atlanta, Georgia, and Dr. Houston. In later years these were increased by Dr. Solomons, who was a pupil and I believe a nephew of Dr. Rodrigues; Dr. J. B. Patrick, who was a pupil and successor of Dr. Houston, and myself a pupil of Dr. Monefeldt.

Before the establishment of these, a Dr. Parmlee visited Charleston annually, and did considerable dentistry in Charleston as well as on the sea islands adjoining, where, I have understood, he made a lucrative practice among the wealthy planters of these islands.

The extraction of teeth was, at one time, the only treatment for these offending organs, and was confined chiefly to medical practitioners. Long after the advent of Dr. Brewster, Dr. William Michel enjoyed much of this practice. His mode of procedure was quite primitive. No operating chair embellished his waiting-room on Queen Street. A sufferer was seated on the wooden settee when the offending molar was examined and waited until the operator was ready. The patient was then directed to stretch himself or herself on his back on the uncarpeted floor; "Primus," the man who drove the doctor's buggy, was the assistant. Primus' duty was to kneel at the head of the patient, placing the palms of each hand on the sides or cheeks of the patient, while the doctor straddling the patient's prone body applied the forceps. When he was ready to dislodge the tooth he cried out "PRESS!!!" and forthwith Primus pressed with both hands until the poor patient felt as if the skull would be crushed in. One pain seemed

to counteract the other, for it was generally admitted that Dr. Michel "pulled" teeth with little pain.

About the time I was with Dr. Monefeldt, Dr. J. B. Patrick was pursuing his studies with Dr. Houston, whom he succeeded, Dr. Houston, I believe, returning to the North.

All the tools, files, teeth and other materials were obtained generally through druggists who kept a small stock of these for sale. Impression cups were made by tinmen who made these according to the patterns furnished them, or by the direction of the dentist. I still have one of these tin impression trays which was made for me by a tinman about 1850. A painter named Simmons, who sold putty, glass, paint, whiting, glue, &c., furnished most of the dentists of the city with Abbey's gold foil, but many ordered it in one or two-ounce lots from the North.

Dr. Cleveland, a druggist, kept a stock of teeth, files, excavators, pluggers, &c. The teeth were kept in bulk. Incisors, cuspids, molars, bicuspid all mixed together. There was no discrimination as to shade, side, size or length. All were heaped promiscuously in tin boxes. The selection of a set of teeth for a given case was attended with considerable labor. The size, side, shade and character all had to be selected from this promiscuous lot, which entailed the loss of much time without that certainty as to shade and character, which was afterwards attained, when manufacturers placed the teeth in sets on card wax.

Dr. Cleveland, the druggist, had a brother who was a dentist, and who had his office over his brother's drug store. He was a very skillful plate workman and beautiful specimens of his gold plate work were exhibited at the first fair of the South Carolina Institute, the fair at which I had exhibited my specimens of carving in ivory. It is this Dr. Cleveland who laid claim to the *central* or suction chamber. But although the chamber is known as "the Cleveland chamber" the claim was not allowed by the judges, for the following reasons: Suction chambers had been used on plates in France, and I remember having seen some of these plates where the suction chambers were placed on the ridge of the gum on each side, and this plan had been used by some of the dentists of the city. Dr. J. B. Patrick, however, had a plate to make for one of his patients, but the dread which this patient had of having the roots which remained, extracted, was so great that she vowed she would go without teeth rather than submit to the extraction. Under these circumstances he thought over the matter and wondered why a suction chamber placed in another locality would not do as well as on the ridge? Acting on this idea he

made the plate for the lady with a central air chamber, which proved an eminent success.

On inquiry it was proved that Dr. Patrick's use or invention of the central air chamber antedated Dr. Cleveland's. This was known and testified to, as it happened that the plate was made for the wife of one of the judges; but as the witness could not be "called into court" to show Dr. Patrick's work without exposing the lady to the general knowledge of wearing artificial teeth, Dr. Patrick would not push his claim, and this chamber is still known as the "Cleveland chamber."

The Cleveland chamber was constructed differently from other central air chambers used then and since. "The Blind Cell," as it is sometimes called, was made by stamping the plate of one piece, using an elevated pattern of the cell on the die. With the Cleveland chamber, a cap or cover was swaged over this pattern, this part of the plate being cut or filed out. The advantage claimed was that a closer adaptation and a more perfect exclusion of air could be secured with it.

I recall, about 1849, first seeing some porcelain teeth to be used as substitutes. They were monstrosities in size and shape. They had no resemblance whatever to human teeth, being fully as large or larger than a man's thumb nail, which they resembled more than they did human teeth. In color they were of a greenish gray, while the enamel which was flowed over their outer surfaces was largely covered with minute bubbles, apparently of some vitreous substance. They were scarcely one eighth of an inch thick. The backs of these teeth seemed porous and were not covered with enamel as the fronts were. The backs of these teeth were provided with a groove extending from the cervical edge nearly to the cutting edge. This groove was provided with three or four platinum pins, which could be bent over a piece of flat gold wire, which was fitted into the groove, designed to secure these teeth both to the plate as well as to the wire which was fitted into the groove. I never saw any case where these teeth were ever used. Their shape admitted of extensive grinding, in order to reduce them somewhat to a natural size to make an approximation to the size of human teeth. But their color and shape was so abominable, that I never saw any case where they could be employed.

Dr. Blandy, or Blanding, of Columbia, South Carolina, introduced his cheo-plastic method, which was favorably received, but as he left the States shortly after its introduction and left no formula for his metal, and as vulcanite was introduced about the same time, the latter superseded it.

Dr. Rodrigues, I think, was the first to use vulcanite and mount

artificial teeth on this base. To him also may be accorded the first "obturator." Although this latter was a simple construction, being only a gold plate swaged over a fissure in the roof of the mouth or hard palate of his patient, it nevertheless was most effective in improving the speech of his patient, who was unable, before this plate was made for him, to enunciate distinctly on account of the air passing from the posterior nares through the mouth or the reverse.

In the matter of continuous gum work Dr. Monefeldt made the first effort to introduce it in Charleston. A Dr. McIlvane, purporting to be the agent of Dr. John Allen, sold the right for the City of Charleston to him, and exhibited specimens of the work. The process was explained, and a muffle being procured a furnace for fusing the body and gum enamel was constructed in the laboratory. But whether the furnace was badly constructed, or the process not carried out as it should have been, even the specimen cases which were tried proved utter failures. The material cracked in every possible way, peeled from the platinum plate and was most unsightly. Several cases were made in the effort to improve our knowledge of it, but none of those we experimented with approached in the smallest degree the beautiful specimens which were exhibited. Without more experiments than possibly six or eight cases, Dr. Monefeldt abandoned the work, being better remunerated by his practice at the chair than by experiments in the laboratory, and quietly submitted to the loss of the fee which he had paid for the license.

The workman who preceded me had left the employ of Dr. Monefeldt, so that now all the dental laboratory work devolved on me. While the other workman, and student, remained it was I who ran all the impressions, made the articulating models (made then entirely of plaster of Paris)—brass articulators not being in vogue at the time—moulded the dies and counter dies, selected the teeth, and did much of the work in the laboratory besides the carving of ivory teeth, of which I was heartily sick. Now all the work was done by me, and there was no time for "carving teeth," I doing, yearly, in the laboratory alone, fully five thousand dollars worth of gold-plate work.

In 1852 I established myself in the practice of dentistry, since which time, with the exception of my service in the Confederate Army, I have pursued the calling.

I recall the coming of Dr. John Holt to Charleston. Dr. Holt advertised extensively "painless dentistry," and in a few weeks his office was so besieged that no one could obtain an appointment; so that I believe he and his assistants were constantly employed. This

state of things interfered seriously with me, as well as others who were just starting, or whose practice was not well established. But the old saying, "It is an ill wind which does not blow some good," Dr. Holt had cast his net and made his haul. Arsenic had aided him in establishing his claims to painless dentistry, but when he left Charleston, to practice his rascality on other communities no doubt, then the dentists of the city had their hands full in treating the cases of alveolar abscess which his monstrous use of this irritant subsequently provoked.

During the continuance of the war, being stationed at Adam's Run, a place about thirty miles from Charleston, where we were detailed for garrison duty, General Evans asked the captain of our company if among his men there was a dentist. Captain Walter replying in the affirmative, I was dispatched to the city for my case of instruments. Gold fillings were wanted but I had no gold foil; the depreciation in the currency was such as to forbid its purchase; but Confederate money was plentiful. Corresponding with Messrs. Brown & Hayse, of Atlanta, Georgia, who kept a dental depot, I shortly after this procured of them one ounce of gold foil for which I paid them *fifteen hundred dollars* in Confederate money, some of which I had after the war closed, the demand for gold fillings being so few, as well as my opportunities for practicing dentistry at all, prevented its use, so that the bulk of this ounce of gold foil remained in my hands and was used for "Post Bellum" operations.

The days of dental engines had not yet arrived, and in preparing a cavity of decay the bur and excavator were the only instruments used. I remember seeing a hole, near the root of the right fore finger on the palm surface on Dr. Monefeldt's hand, induced by the constant use of the bur. A hard, leathery skin had formed here as callous as the finger nail, by the constant friction of the handle of the instrument, making a socket as well defined, if not better than the subsequent "bur thimble" invented at about this time.

Although there was no law then to prevent men who had studied dentistry under private preceptorship from practicing the calling, nevertheless the establishment of dental colleges induced many to obtain the diplomas they offered after attending their lectures and submitting to examinations. I believe Dr. W. S. Brown, of Charleston, who had been doing Dr. Monefeldt's artificial work after I left, was the first dentist in the city to work under the authority of a diploma received by him from the Baltimore College of Dental Surgery. A diploma had been conferred on Dr. J. B. Patrick by the New Orleans

Dental College, and in 1872 I received a diploma, after examination, from the Pennsylvania College of Dental Surgery.

I believe it will be cheerfully admitted, that to my efforts was due the establishment of our local dental organization, "The Charleston Dental Society," which, up to the time of my change of residence, induced by the destruction of my office by fire, was kept in successful monthly meetings by my persevering efforts.

The first dental engine which I recall was Green's Pneumatic Engine. Dr. Patrick had purchased one of these at a dental society which he had attended, and on one occasion lent it to me to cut down and polish a contour gold filling which I had inserted. The device consisted of a bellows worked by the foot. From this a rubber tube extended connected with a handpiece. The working of the bellows forced the air through the rubber tube which, acting on the machinery in the handpiece, caused the revolution of a mandril to which the cutting tools were affixed. It was not, however, very popular, as it lacked power, was fatiguing to work, and besides this made such a buzzing noise as to be very disagreeable.

I recall, some thirty years ago, the small book, of not more than one hundred and fifty pages, written and published, I think, by Dr. James W. White, on "Dental Materia Medica." It was the only work of the kind on this subject that was put into the hands of the dentist, and was necessarily crude; yet, how I devoured its contents! It was no doubt the pioneer or instigator of Prof. Gorgas' more extensive and elaborate work on "Dental Medicine."

THE AMALGAM QUESTION.

BY THEODORE F. CHUPPIN, D. D. S., Philadelphia, Pa.

We were rather impressed with some of the views advanced by Dr. Charles H. Taft in his paper, "The Amalgam Question," and dentists with "Yankee Wit" read before the American Academy of Dental Science. In some of these we must accord; in others they meet our condemnation.

In the first place we must unequivocally condemn any recourse to trickery in the exercise of our calling. Such a resort has no excuse either to cover up incapacity or to carry out our ideas of what should be done. If we consider that amalgam be the proper material to use for a certain case we should use it, and a surreptitious dealing to carry out our opinion should be condemned. "Honesty is the best policy" *always*, and will ever meet the approval of all good.

men. If patients be more inclined to trust the opinion of their physician than their dentist, the dentist should either reject such patients or resign such cases altogether. We are either professional men or we are not. It is to be presumed that when patients employ a dentist, they do this with a full confidence of the dentist's ability to serve them; that he, the dentist, is fully competent to tackle the cases offered, as well as to discriminate as to which material is best for the case presented. Or if the dentist take the case, preferring to yield his opinion to the opinion of the physician (who frequently knows nothing about it) which we consider pusillanimous, he should do it with the distinct understanding that he will be in no way responsible for the result.

Nothing esoteric, nothing secret, nothing underhand should be countenanced. No rolling up of sheets of gold foil, no exhibition of gold cylinders, no forming of gold into mats or pellets, while he secretly fills the cavity with amalgam should be sanctioned by any whose good opinion is worth having; so we must agree with Dr. Taft that "Yankee wit" and all "Snidery" are to be condemned.

In the next place we must admit that there are certain susceptibilities, incomprehensible as they seem, which appear to be born with us and are difficult to overcome. We have heard of persons being affected by eating strawberries, but have never met with the idiosyncrasy, and conclude if it exist at all, that it exists in such an infinitesimal degree that it is not worth mentioning. The other instance brought forward by Dr. Taft, of the man who would be seized with a vertigo, or be affected with a violent headache might be put down as one in a million. We have likewise heard of persons who are so affected by the odor of roses that they are rendered unconscious when the odor is detected. We are more disposed to attribute these peculiarities to the imagination than to the stern reality. People can work themselves up into such beliefs that they imagine themselves sick when they are in perfect health. I remember when I was first married my wife got into one of these nervous imaginary conditions, from the death of our first child, that she was in a pitiable condition. I had a magnifying mirror which I used for shaving. She would put her finger in her mouth to hold down her tongue and with the mirror examine her throat and uvula. She would appeal to me as to the inflammatory condition her throat was in, because of the increased size reflected by the mirror. I could see no inflammation and would tell her she imagined disease where none existed. My mother humored her more than I, so that her consultations were more

with her. She would even go to sleep at my mother's house, because she found more sympathy with her mother in law—(which was rather anomalous—mothers-in-law being generally tabooed). Then she would read attentively the papers advertising "patent medicines," and conclude that every symptom delineated by these nostrum venders was her own. She got worse, contracting a hacking cough, with a creeping chill at the least breath of air. I took her away and consulted a physician in the small village we went to. The physician, a sensible, straight-forward man, examined her carefully and told her he could see no evidence of disease at all, "but," said he, "your stomach is out of order, not from disease, but from something you have been taking." She then told him how she had been taking Cod Liver Oil, for her cough. "You have no cough," said he, "it is the Cod Liver Oil which has produced this hacking cough. Stop it at once, and you will need no further advice from me." The birth of a second child took her attention from herself and she got entirely well. She afterwards admitted to me that she had taken 12 quart bottles of Cod Liver Oil; two and three tablespoonfuls at a dose, and that frequently the stomach would be so nauseated that it would return to the mouth only to be forced back. Thus will persons be influenced by the imagination.

A case is on record of a lady so susceptible to the odor of roses that she would go off in a dead faint at the *odor* of these flowers. Going to a reception she saw a lady with a large bunch of these flowers on her "corsage." Immediately she fainted and had to be taken into an adjoining room where restoratives were administered. When she recovered sufficiently to speak she was asked by those present, among whom was the lady with the offending roses, what was the cause of her fainting? Was it weakness? Was it the heat of the room? "No," she replied, "neither of these. It was that lady (pointing), or rather the roses she wears at her waist. I have a peculiarity about the odor of roses. They make me faint when I smell them." "Then," said the lady, coming forward, "my roses cannot be the culprits, *as they are artificial* and have no odor."

Again we have the record of another case of imagination.

A man was condemned to death, and, some physicians wishing to try the effect of the imagination, requested the authorities to aid them by delivering the culprit over to them. They told this one that he had to die, but that they wished to save him a painful death and would just open the veins of his arms and legs until he would painlessly bleed to death. In an adjoining room tanks were fitted to

the walls from which small rubber tubes led, these being filled with tepid water about blood heat. The culprit was blindfolded and led into the room where he was strapped immovably to a cot. The surgeons now pricked the flesh while the tepid water was permitted to trickle on the arms and legs and drop into receptacles below. The utmost silence was maintained. The surgeons speaking in whispers, yet loud enough for the victim to hear, the talk bearing on the condition of the man, and every now and then coming to feel the pulse—and whispering that the man was growing weaker and weaker. The result recorded was that although the man received only four pin sticks, he actually died from the effect of imagination believing that he had bled to death. This may be thought an overdrawn case but it is on record.

In the same way we believe there are persons who can be made to believe that they are affected by certain influences which experiment will entirely refute.

We heard of a case of a poor woman who was sick, almost to death, from the most violent nausea. Two homeopathic physicians were in attendance, and after diagnosing and consulting for some time they determined that her trouble existed solely from her idiosyncrasy to the mercury contained in the rubber plate she was wearing. They told her they could do nothing for her as long as she wore that plate, as it was without doubt she was affected by the mercury in the plate, and if she must have artificial teeth she must have them mounted on a gold plate. In her circumstances a gold plate was out of the question. They promised to do what they could for her, and accordingly on their next visit, told her to go to Dr. ———, that he was a kindly-disposed man and would take her circumstances into consideration and not charge her more than the expenses. When Dr. ——— saw the case he asked her how long these physicians had been attending her. She said about three months, that the trouble she suffered from was caused by the mercury in the plate, and that she never would be better unless she had a gold plate. "Well," said Dr. ———, "you go home, and when your physicians come to see you again tell them I say mercury is not the cause of your trouble, that you will not have to wear a gold plate to ameliorate your condition, and that you can still wear your same rubber plate, and that what they have been fighting over for three months, I will cure in fifteen minutes." Dr. ——— saw that the whole cause of the constant and excessive nausea was due to the plate encroaching on the soft palate, and by simply cutting away the plate until it rested on the hard palate, the

case would cure itself, which it did. So much for this diagnosis of mercury.

Dr. Taft depreciates amalgam because amalgam fillings contain mercury. But where one person may be affected by mercury, a thousand may not be, and we very much doubt if the small proportion of mercury which an amalgam filling contains would ever affect any one. Yet we believe the homeopath contends it takes an infinitesimal part of the drug to produce its effect.

Dr. Taft says he has a patient, or knows of a person so easily affected by mercury that if the cork of a bottle containing the bi-chlo. of mercury be left out, and this person enter the room, he would be immediately affected by the infinitesimal fumes, and consequently, for such persons, it would be out of the question to insert an amalgam filling. Such a man is certainly to be commiserated. How does he comb his hair or tie his cravat? He must certainly use a looking-glass; does not the mercury on the back of the glass affect him? It would seem so, since the infinitesimal vaporization from the bottle does this. Is he not a hypochondriac?

We recall a case of a fine operator who refused to use gold at the earnest solicitation of his patient. The patient was persistent, doubtless egged to the operation by one of the "gold fiends" who consider that gold is the sole prophylactic for filling teeth. Time and time again he came to the charge, and time and time again the dentist refused, until the patient, either of his own opinion or the insinuations of the "gold fiend," believed his dentist *incapable* of this style work. The patient had lost his back teeth, and did all his chewing on the sixteen oral teeth which remained to him, namely, from the first bicuspid from one side to the other in each jaw. These teeth had been considerably worn, and the "gold fiend" proposed to restore them with contour gold fillings, which he did for the patient, when this one found that *his* dentist would *not* do it. After paying a very heavy fee, the patient returned to his dentist, eighteen months later, with his beautiful contour fillings flattened out like lead bullets subjected to the blows of a hammer. Amalgam inserted under similar circumstances would have served a better purpose. Under these circumstances I wish to stand up for amalgam, as I know that it holds a valuable place.

Because an infinitesimal number of persons may be affected by mercury, which we are inclined to doubt, and rather often disposed to attribute to the imagination, are we not to use it? Because a few

may be affected by eating strawberries, are strawberries not to be eaten?

The position is untenable.

If Dr. Taft wishes to condemn the use of amalgam when the patient asks for gold and inserts amalgam "on the sly," then I am with him; but if he wishes to taboo amalgam I am against him. *Unguibus et rostero.*

REPORT OF THE NEW JERSEY STATE DENTAL SOCIETY.

The twenty-eighth annual session of the New Jersey State Dental Society convened at Asbury Park, at 10 o'clock, July 20th, 1898.

After the usual preliminaries, the President, Dr. J. L. Crater, of Orange, read his annual address. He gave a brief review of professional progress, noting especially matters of local interest, and spoke at some length of the new dental law, and explained the object of the changes made. While it was not just as they would like it to be, he thought, in the light of passed experience, it would prove an improvement over that which it superseded. The address was short, practical, and to the point.

The remaining time of the session was devoted to business.

At the afternoon session, Dr. Allison R. Lawshe, of Trenton, read a paper describing a new sectional block for vulcanite, or other moulded or cast bases. The section exhibited was simply a gum section block of three front teeth. The teeth belonging to it had been ground away and plain countersunk teeth fused on in their place; the change was very neatly done. It was, of course, merely an extemporized model illustrating the essayist's idea. While it may give a little more natural form to the palatal surfaces, it will not, I am impressed, be nearly as strong, or as generally useful, as the usual form of front blocks. It is merely a modification of a thousand and one suggestions to the same purpose that have been proposed from time to time.

Dr. Wm. J. Wallace, of Glen Falls, N. Y., followed with a paper upon "Practical Experience with a few Homeopathic Remedies in Dental Practice." So far as your reporter could understand, he simply used a few of these remedies to reduce inflammatory conditions, or to combat systemic conditions inimical to dental treatment, or to relieve pain.

Dr. Frank G. Gregory, of Newark, N. J., read a paper upon "An Effective Method of Treating Chronic Alveolar Abscess, and Molars having Exposed Pulp Difficult to Extirpate."

His method was, in short, to extract the abscessed teeth, reduce the length of the root, and, after promptly treating the tooth and socket, replant. The molar teeth he treated in much the same way.

At the evening session a paper was read, written by Dr. I. P. Wilson, of Burlington, Iowa, entitled "A Study of the Physiological and Pathological Conditions of the Apical Portion of the Cementum." The discussion turned largely upon the safety of leaving arsenic in contact with pulp tissue more than a few days, and also its ultimate effect upon the tooth tissue and surrounding parts, when permitted to remain a long time within the pulp canal. I noted no new points brought out by the rather long and animated discussion. The speakers, for the most part, merely related their own opinions and experiences, and saw little to commend in those of others.

This was followed by a paper by Dr. J. A. Wass, of Hammonton, N. J., upon "My Experience with Pulp Mummification." This was a real practical paper. The writer had for two years followed the method of pulp mummification suggested in the *Dental Cosmos*, Nov. 1895, page 922, and referred to some sixty cases, embracing all kinds and conditions of teeth, which he had treated by that method, most of which he had been able to keep track of, and they had, without exception, remained comfortable, and, so far as he could see, promised to be perfectly successful. He exhibited quite a collection of extracted teeth with roots so formed that they would bother the most expert operator to perfectly cleanse and fill to the apex their pulp canals, some extremely long with curves at critical points, others with peculiar curves, others again with a multitude of small roots whose canals emerged from the central cavity in most unlooked-for positions and directions. They were a suggestive object lesson.

Of course, the method was pronounced unscientific, and dire disaster prophesied, and many reasons given why it could not, and should not, prove successful; and why it was not good practice. The essayist, however, very well held up his end of the argument. Having in so many cases succeeded in making the teeth perfectly comfortable, finding that they remained so, and finding the practice much more satisfactory to him than his previous efforts in extirpation and filling, he was disposed to continue the practice of mummification until he found better reasons for changing than those so far suggested.

The next morning, July 21, two papers were read, the first by Dr. W. G. Chase, of Philadelphia, Pa., entitled "Alveolar Abscess and Caries of the Maxilla." The second by Henry H. Merrell, Ph. D., M. D., of Chicago, entitled, "A Plea for the More Scientific and Careful

Study of *Materia Medica* as a Branch of Dental Education." The discussion of both these papers turned upon the right and the advisability of dentists assuming to prescribe for systemic conditions more or less associated with dental lesions, or to assist dental treatment. The legal rights, the professional rights, and the politic rights of encroaching upon general medical practice were thoroughly discussed. While the two extremes of the question had advocates who vigorously stated and defended their views, those who thought it was a matter calling for careful and discreet judgment presented decidedly the best and strongest arguments.

The afternoon was devoted to clinics. The following were noticed by your reporter. It is quite probable he may have missed others of equal merit. Dr. A. Irwin, of Camden, N. J., presented a case in Orthodontia, a mouth particularly crowded, which he had markedly improved with a still farther improvement by extracting and expanding, using for the latter purpose a bar attached to the back teeth and extending around the upper front teeth, capping the molars to facilitate the upper front teeth moving outward to assume their proper place in relation to the lower incisors.

Dr. C. de Trey demonstrated the workings of solila gold.

Dr. Joseph Head illustrated a method of replacing the molars of the lower jaw when required on one side only. He constructs a plate resting upon the gum under the teeth to be supplied and extending two or three teeth farther front. To the inside of these teeth, one, two or three, as may be judged best, he makes a clasp approaching very nearly the form of a half cap, fitting the lingual surface, and to the buccal surface a clasp embracing one or two teeth near the gum line. This makes a device that remains firm, and comfortably resists the pressure of mastication. The doctor said that he had made many pieces constructed in this way, and that they had uniformly given satisfaction.

Dr. W. H. Pruden, Paterson, N. J., exhibited the use of a gutta-percha washer between the root and a porcelain crown, the object of this washer being to more thoroughly protect the cement from the solvent action of the saliva.

Dr. H. C. Register, of Philadelphia, exhibited and explained his method of using a ribbon matrix, of using bibulous paper in inserting and condensing gold, showing its use with both foil and crystal gold. He also exhibited a method of sterilizing teeth in the mouth by means of formaldehyde gas, hoping by periodically thus treating teeth in mouths, where decay is rampant, to lessen its ravages. He

covers as many of the teeth as may be convenient with the dam, pressing it well down towards the gum so as to include all portions of the teeth liable to caries. He then gathers the free portion of the dam together so as to form a kind of bag enclosing the teeth. Into this, by means of suitable appliances, he passes the gas, providing means of access and egress so the teeth are surrounded by an atmosphere that destroys all forms of germ life. This gas is particularly penetrating and a reliable germicide. He hopes by thus treating all the teeth in the mouth at suitable intervals, to prevent the formation of those colonies of destructive germs so ably demonstrated by Dr. Williams to be the initial cause of dental caries.

Dr. F. L. Fosheim, of New York, demonstrated a method of fastening loose lower front teeth. He first made along the cutting edges of the teeth a shallow groove, then at a convenient point drilled into each tooth, in line with the axis of the tooth, a small hole about an eighth of an inch deep. He next fitted to the cutting edge of each tooth a platinum cap, burnishing it well into contact at all points, then soldered to this cap a pin passing into the hole. This cap covered the cutting edge only, and is not intended to extend farther over the tooth. When all are fitted, they are placed into position and by suitable means held together, removed, invested, and firmly soldered so as to form a strong continuous cap or band fitting accurately the cutting edges of the teeth, with a pin passing into the hole in each. This is then cemented in place.

At the evening session, Dr. William H. Trueman, of Philadelphia, read a paper entitled "The Evolution of Dental Materia Medica," in which he traced the use of remedies for the treatment of disorders of the teeth from a remote period. He read extracts from a medical work written in 1514, giving the crude ideas then held regarding the teeth and their diseases, and some of the peculiar remedies in vogue. Of these, he said, camphor, acetic acid, alum, and alcohol, and a few aromatics, are about all that have continued in use. He then read from a work published in 1679, upon the teeth, by a French apothecary, showing a better knowledge of the disorders of the teeth, and a line of treatment more in accord with present practice. This writer was well acquainted with nitrate of silver, sulphuric acid, oil of cinnamon, and oil of cloves, and used them for much the same conditions and in much the same way that we do. He then gave a resume of a portion of chapter V, vol. I, of Fauchard's work, giving his classification of diseases of the teeth, showing evidence of that writer's better acquaintance with the character, structure, and surroundings of the

teeth. With this came, as a matter of course, a more intelligent use of remedies. He thus demonstrated that in the interval between 1514 and the time Fauchard wrote, 1728, dental materia medica had become a science.

At the morning session, July 22, Dr. H. C. Register, of Philadelphia, read a paper outlining a proposed method looking to the prevention of caries by some such means as suggested by his clinic.

The closing hours of the session were occupied by society business.

The meeting, as a whole, may be considered a successful one. We missed several who have been for years constant attendants. Some have passed away, and others, closing long and well spent lives, are waiting their call. We were particularly pleased to note the youthfulness of a majority of the essayists, and a more than usual proportion of youthful faces among the audience. The list of members, as given in the neatly gotten-up programme, is about 104, and at this meeting about half a dozen more were elected. We consider this an excellent showing.—W. H. T.

[THIRTY-FOURTH PAPER.]

LEADING QUESTIONS AND ANSWERS FOR DENTAL STUDENTS.

By THEODORE F. CHUPEIN, D. D. S., Philadelphia, Pa.

Q. Should the patient return complaining of severe pain after the application of arsenic, how would you act?

A. If the tooth were a young one, or one highly organized, I would use all means to suppress the inflammation which was doubtlessly caused by the irritating nature of the arsenic.

Q. What would be those means?

A. I would cleanse out the cavity; free it of all trace of arsenic, and ease the pain by the application of chloroform, camphor, hydrate of chloral, hydrochlorate of cocaine, carbolic acid, oil of cloves, any of these, or other agents, until I could obtain quiet. If the patient were in a highly nervous state from suffering, I would prescribe one, two or three antkamnia five-grain tablets, administered every hour, and a five-grain Dover Powder tablet on retiring for the night.

Q. In teeth of the young, or in very vascular teeth, is not the application of arsenic apt to produce these results?

A. In such teeth these results may be looked for.

Q. Why?

A. Because the arsenic is rapidly absorbed and a very small quantity of the agent is required in these cases.

Q. Have any suggestions been made to prevent the pain caused by rapid absorption?

A. It has been suggested that by combining the arsenic with powdered charcoal and then forming it into a paste the rapid absorption may be controlled.

Q. What has to be considered in making an application of arsenic to destroy a pulp?

A. The density of the tooth and the age of the patient.

Q. How much of the pulp should be devitalized?

A. At least two-thirds. It is difficult to so make an application that will effect this exactly; but by a careful diagnosis of the character of the patient, the age, nature and density of the tooth, and the quantity of the agent used, an approximation may be arrived at.

Q. Is arsenic soluble in carbolic acid?

A. It does not seem to be, for after considerable trituration of the two the arsenic sinks leaving the carbolic acid above.

Q. How is arsenic generally used now?

A. It is formed into a paste with morphia, iodoform, hydrochlorate of cocaine, etc., by moistening one or more of these agents with the oil of cloves or carbolic acid.

Q. Is the addition of morphia to the arsenic attended with any beneficial results?

A. It was at one time thought that it obtained an analgesic effect, and reduced the pain of the arsenic; but it is now regarded useless in procuring this benefit. Nevertheless it has been proved in very many cases that the application of morphia quiets toothache, and is one of the best applications to quiet inflammation and as a forerunner to the application of arsenic.

Q. When the cavity exists on the proximate side of the tooth, what should be the procedure before the application of the devitalizing agent?

A. The rubber dam should be applied so as to isolate the tooth, and thus prevent any danger of escape of any of the arsenic on the gum at the interdental space, whereby a sloughing would ensue.

Q. Suppose the tooth to be so decayed and the cavity so shallow as to afford no lodgment for the retention of the arsenic next the exposed pulp, how is this to be retained?

A. By means of ligatures wrapped around the tooth tying in the application.

Q. What other means have been resorted to ?

A. A small quantity of arsenic is applied, retaining this with a little oxyphosphate cement. This application is intended more to deaden a portion of the dentine so that this may be cut into a cavity for the better retention of the arsenic than the broken walls or shallow nature of the case at first permitted.

Q. How long should the arsenic be permitted to remain in contact with the exposed pulp ?

A. Twenty-four hours have been deemed long enough, although a longer time is frequently required.

Q. Can the pulp then be removed painlessly ?

A. Sometimes it can, but often it will be attended with considerable pain.

Q. Why should it give pain if it be dead ?

A. There is a portion of the pulp still alive at the end of the root, and it is when the dead portion is forced against the live portion by the insinuation of the nerve broach, or when the live portion is severed from the dead portion by the barbs of the nerve broach entangling themselves in the dead portion, which cause the pain.

Q. Is it best to remove the dead nerve at the time of the removal of the devitalizing agent ?

A. It is thought by some operators that it is better to wait for a time, until there is a partial sloughing of the pulp before the removal is attempted ; that by thus waiting less pain is inflicted.

Q. How is the pulp removed ?

A. A barbed broach is insinuated into the root as far as possible when it is rotated, thus severing the live part from the dead.

Q. Are all these nerve broaches made alike ?

A. No. Some are barbed along the shank, others have but a single hook or barb on the end, while still others are formed like a spiral or corkscrew.

Q. Which of these styles remove the nerve best ?

A. Each has its advantages. It is difficult to decide as to which is best, as with all three styles we have failed at times to remove the nerve.

Q. When the nerve cannot be removed with broaches what has been recommended ?

A. To knock it out.

Q. How is this done ?

A. An orange-wood twig is whittled down to a size approximating the size of the nerve to be removed. The point of this is entered

into the root canal. A sudden blow on the protruding end of the twig drives the stick up to the foramen and thus destroys the nerve, as the nerve is generally found adhering to the stick when this is withdrawn.

Q. Is this not a severe operation?

A. The quickness with which it is accomplished renders it not nearly as painful as the gradual insinuation of the nerve broach. Patients for whom it is done complain less of the knocking out of the pulp than of its removal with broaches.

Q. Suppose the stick should break in the canal, what then?

A. It may readily be drilled out.

Q. Is this operation practicable in all teeth?

A. It is not; but it may be performed on any of the six front upper teeth, in one of the roots of the first upper bicuspid, and the palatal root of the upper first and second molars, also on the lower cuspids and the lower first and second bicuspid.

Q. When the nerve has been removed, should the roots be filled at once?

A. Considerable difference of opinion exists on this subject. It is thought to be safest to place a temporary stopping in the roots steeped in oil of cloves, or eucalyptus oil, and fill the crown with red gutta-percha, and thus let it rest for a time.

Q. What objection is raised to this plan?

A. The advocates of delay in filling contend that there is a collection of lymph in the canal which might invite putrefactive action, which the antiseptics used would check; while those favoring immediate filling contend that the insertion of the filling would check this collection of lymph and would arrest it altogether. Dr. Litch recommends that before the filling is inserted a heated broach should be freely passed into each root so as to dessicate the contents of the canals, should any be present.

Q. Does the application of arsenic ever fail to devitalize a pulp?

A. Repeated applications of arsenic have been made to an exposed pulp, and have even been pricked into the organ, yet has failed to act on it.

Q. Should the pulp be very difficult or painful of removal, and the operator averse to the knocking out process, is it best to wait for entire decomposition before attempting its removal?

A. Such procedure is considered very reprehensible and should be condemned. There are means now of removing any pulp painlessly, or with comparatively little pain.

Q. When the pulp dies without the application of arsenic to destroy it, what becomes of it ?

A. The pulp becomes disorganized and putrescent.

Q. May not this condition occur *without* as well as *with* exposure ?

A. It may.

Q. How would you define such a case when the pulp died without exposure ?

A. Death from extrinsic causes.

Q. Please to give an example of death from extrinsic causes.

A. As the word implies, the death was caused from *outward causes*—the word extrinsic meaning outward. A blow, a fall whereby the tooth was brought in violent contact, resulting in the death of the pulp.

Q. Are these the only cases of death from extrinsic causes ?

A. The pulp may be killed from violence used by regulating appliances, or from the sudden change of temperature induced by very hot or very cold food carried through metallic fillings in the vascular teeth of young persons.

Q. Is the death produced by the action of regulating appliances the same as the death produced from thermal changes ?

A. The death produced by the action of regulating appliances is generally attributable to strangulation at the apical foramen, while the death from thermal changes is more attributable to repeated shocks.

Q. When the pulp of a tooth is thus killed, is it generally the cause of great pain ?

A. It is not generally the cause of great pain. Indeed, pulps may be thus killed and the tooth remain perfectly comfortable and quiet for years.

Q. Do they always remain quiet ?

A. They do not ; but are liable to result in the most violent pain without any accountable cause.

Q. Should one of these teeth be a front tooth, which has resulted in discoloration, would it be proper to attempt the restoration of the color of the tooth by the treatment for this ?

A. This would be a question ; for in opening into the pulp chamber in order to remove the septic matter, preliminary to the bleaching of the tooth, the risk of causing violent pericementitis, and the intense suffering it entails is scarcely warrantable, and should not be attempted without informing the patient what might be the result of such procedure.

Q. What might happen besides the pain induced from meddling with these cases?

A. The condition of the system must be considered, for if this be in a depraved state, besides pericementitis and alveolar abscess, necrosis could result.

Q. What, then, is a good rule to guide us in these cases?

A. To leave well alone. To use our efforts to relieve pain and not meddle with cases that are quiet, and would result in violent pain, possibly a worse condition by such interference.

Q. Are all teeth with dead pulps subject to these conditions?

A. They are; but teeth which have their pulps entirely enclosed, either by being free from decay or having only small cavities, which have been filled, are more liable to assume these severe conditions.

Q. When such teeth take on these conditions from whatever cause, what is the treatment?

A. The pulp chamber must be opened by drilling through the enamel and dentine, or through the filling, should it have been filled, in order to give vent to the septic matter within this chamber.

Q. Suppose the tooth to be an upper first or second molar, with a filling on its disto-masticating surface, would you approach the pulp chamber through the filling?

A. If the filling were in perfect condition, and did not involve a very large portion of the tooth I would not disturb this, but make the opening through the masticating surface. If, however, the filling were in a poor condition and was of such a size that a new opening would materially affect the strength of the tooth, I would then approach the pulp chamber by removing the filling. If the case were any of the oral teeth I would approach the pulp chamber through the palatal surfaces of these teeth, drilling in the direction of the long axis of the tooth.

Q. How will you determine when you have entered the pulp chamber?

A. The drill, finding no obstruction when it reaches this point, will suddenly sink into the pulp chamber.

Q. What will ensue then?

A. There will sometimes be the exudation of pus, or a powerful odor of putrescence ensuing.

Q. What is then done?

A. The pus is permitted to flow until it shows signs of ceasing, when it is wiped out of the cavity by means of a probe wrapped with cotton floss, and afterwards with some antiseptic mixture, such as

carbolic acid, oil of cloves or eucalyptus. In the case of excessive putrescence there is nothing which controls this and neutralizes the odor more promptly than electrozone or meditrina.

Q. What is next to be done ?

A. It is best to do nothing more at this sitting, but simply to seal the cavity vent *lightly* so as to prevent the ingress of food.

Q. What is done next, after relief has been given by drilling into the pulp chamber as above indicated ?

A. The putrescent pulp is removed and the canals treated in the manner usual for such cases.

Q. What is this treatment ?

A. The odor of putrescence must be eliminated and then the case treated with carbolic acid, salicylic acid, boracic acid and such agents as will prevent further decomposition.

Q. Who has taken one of the most intelligent views of such cases ?

A. We are indebted to Prof. Litch, of Philadelphia, for a very clear expression of such cases.

Q. What does he say ?

A. "A careful discrimination must be made between the powers, respectively, of such antiseptics as carbolic acid, creosote, oil of cloves, oil of thyme, oil of cajiput, etc., and such other antiseptics as chlorine, bromine and iodine, which, in addition to their antizymotic power, are true chemical antagonists of those sulphuretted-hydrogen compounds of which putrefactive gases are constituted, such gases being immediately decomposed by them, their hydrogen elements going either to the chlorine, bromine, or iodine, to form, respectively, hydrochloric, hydrobromic, or hydroiodic acids, the sulphur being in each case precipitated.

"This can be readily demonstrated by acting upon a small portion of ferrous sulphide with dilute sulphuric acid, and passing the sulphuretted-hydrogen gas, which will result from the reaction, through tincture of iodine. A milky precipitate of sulphur will at once appear, and at the same time the characteristic color of the iodine will disappear in consequence of the conversion of the iodine into hydroiodic acid, a heavy, colorless gas, which remains in solution in the water present in the alcohol of which the tincture is made.

* * * * *

"If the sulphuretted hydrogen is passed through the strongest possible solution of carbolic acid, no such precipitation of sulphur occurs ; no change either in the appearance or chemical constitution

of the the carbolic acid is manifest. * * * * No matter how thoroughly the odor of putrefaction in a room or in a tooth may be masked or disguised by the characteristic odor of carbolic acid, creosote, oil of cloves, or, indeed, any antiseptic oil, the gases are none the less present, although their odor is neutralized; the disinfection is apparently not real. The further formation of putrefactive gases may be prevented, but the decomposition of those already formed must be accomplished by those chemical agents bromine, chlorine or iodine."

See *Dental Cosmos* for February, 1882.

[TO BE CONTINUED.]

BOOK NOTICES.

ORTHODONTIA, OR MALPOSITION OF THE HUMAN TEETH; ITS PREVENTION AND REMEDY. By S. H. Guilford, A. M., D. D. S., Ph. D., Professor of Operative and Prosthetic Dentistry and Dean of the Philadelphia Dental College; Author of "Nitrous Oxide," etc. Approved by the National Association of Dental Faculties as a text-book for use in the schools of its representation. Third edition, revised and enlarged. Philadelphia: Press of T. C. Davis & Sons, 529 Commerce street.

The book of Dr. Guilford is worth its weight in gold to the dental student and practitioner who desire to inform themselves on the subject of Orthodontia, as well as to refresh their ideas as to meeting the difficulties, or selecting the appliances by which these may be combatted, or rendered subservient to what is desired to accomplish.

Besides the attractiveness in its general make up, namely in typography, etc., the language is so clear, the descriptions so lucid, the points so well chosen, and the cases cited of such every-day occurrence, that the work embodies the whole subject.

Many of the cuts are comparatively new, clear, well executed and aid to the greatest extent in the comprehension of cases to which they refer.

The chapters on the "construction of regulating appliances, with the necessary tools, etc.," as well as their gilding or electrical embellishment, are far from being the least merit of the work. He indeed would be "dumb" or "clumsy" who could not, if he possessed only mediocre manual dexterity, manufacture for himself an appliance suitable to the case he would be called on to treat.

We honestly commend the work to all dentists interested in the subject of "Orthodontia."—ED.

A COMPEND OF DENTAL PATHOLOGY AND DENTAL MEDICINE—containing the most noteworthy points upon the subjects of interest to the dental student and a section on emergencies, by Geo. W. Warren, A. M., D. D. S., Chief of the clinical staff, Pennsylvania College of Dental Surgery, Philadelphia; Editor Richardson's "Mechanical Dentistry," etc. Third edition illustrated. Philadelphia: P. Blakiston, Son & Co., No. 1012 Walnut street, 1898.

We notice in this, the third, edition of this work a marked improvement on its former editions. While the subjects treated are necessarily but brief allusions, the explanations are terse and give the gist of what may be more extensively eliminated in works devoted to each particular subject.

The section on Dental Medicine takes in review all those materials which come into almost daily use, explaining their action, effect, components, properties, etc.

In a small compass the book contains much which the dental student should know thoroughly, which is readily accomplished because all is divested of extraneous matter.

The section on emergencies may be very well to incorporate with the work, yet the subject of "artificial breathing" is one only learned by actual demonstration and could only be illustrated by means of the recent invention—"the Cinematograph."

We rather approve of these "Compendia," because, if the student be really in earnest and desirous of learning, they are the "sign-boards" directing him to further, deeper, and more thorough knowledge.—ED.

A TREATISE ON PLATELESS DENTURES—Dr. C. A. Samsioe, of Stockholm, Sweden, writes us: I take the liberty of sending you by this post (May 25, 1898), a copy of my little work: "A Treatise on Plateless Dentures," etc., etc., etc.

As the work has not come to hand up to the time of our going to press, no review can be made of it.—ED.

TIMID CHILDREN.

M. LUKENS LONG, D. D. S., Philadelphia, Pa.

The impression made upon the mind of a child during its first visit to the office of a dentist, will probably have an influence for good or for evil through life, showing the necessity of our making it one to be remembered with pleasure.

In the first place, you should try and gain the confidence of the child. Many will not even allow you to look in their mouths, and you must use some stratagem to accomplish your purpose. Show them a bottle of tooth powder, let them smell it, and ask if they are not pleased with it. Pour some in a small dish with a few drops of water. You will soon find your patient watching your every movement. Have two pieces of orange wood sharpened like a lead pencil prepared beforehand and in convenient reach in your cabinet, one of them short and fitted to your paste polisher. Dipping the long piece in the tooth powder, say to the patient I will now proceed to clean your teeth and you will find the operation so pleasant that you will consider it a great favor to be allowed by your parents to visit the dentist. Give them a handmirror and say watch me while I do the work. Commence on a central incisor very gently at first, but gradually increasing the pressure until you can remove any accumulations on its surface. With a pellet of cotton dipped in water, wash the tooth clean. Probably at the sight of the dressing pliers they will exclaim "now I know you are going to pull my tooth." You will say, how could I pull a tooth with this small instrument. I only show you how neatly we do this, or would you prefer my getting a washrag to wipe it off?

I will now place this mouth mirror back of your teeth and when you look in your glass you can almost see through them. For an examination of the teeth, sharpen the orange wood stick, dip it on the tooth powder, gently rub it over their whole surface, and with the point you can easily detect any cavities of decay, unless they are small and it would be better to defer the use of an explorer till some future appointment. Take the shorter piece and rub it lightly over the teeth to show there is nothing dangerous in it, and say I will place this in the handpiece of a dental engine and you will see that it revolves so rapidly that it will accomplish a great deal of work in a very short time. This porte polisher will hold it securely. With the point clean between the teeth and near the gum margins, but for the front of the teeth the most satisfactory thing I have ever used

is a small felt wheel, as that material will absorb and retain moisture, and the powder will become embedded in its surface. As there is none small enough sold at the depots, you can purchase a large thin wheel and with a tube punch make one the fourth of an inch in diameter, cut out as many as the material will allow with a sharp knife, slice each piece in two or three small wheels. The cost you will find to be so slight that you will never be tempted to do such a great wrong as to use one of them on a second patient.

The tapering screw mandrel with shoulder is a convenient tool for carrying them. Dr. Wood's rubber caps, if they were smaller, would be an excellent thing; but even the smallest, if not used with the greatest care, will lacerate the gums fearfully, especially on the lateral incisors.

Probably by this time the patient has become accustomed to having the teeth "played with," and, finding you are very careful not to do anything that will give pain, you can commence with your felt wheel, dipping it occasionally in the wet tooth powder which you will have in convenient reach on your table. You will soon find your patient enjoying the work by the remarks: "I like this. Isn't this splendid. I'd like to come every day and have my teeth cleaned, it's so pleasant. I will tell all my friends to come here." If there should be any portions of tartar remaining they can be removed with a small scaler. With a syringe wash off the teeth with water at a temperature of about 100 degrees. If there should be any large cavities and you are certain there is not an exposed pulp, they can be washed out, but be very careful to direct the point of the syringe toward the outer wall of the cavity. After drying with absorbent cotton, with the dressing pliers apply a pledget of cotton dipped in beechwood creosote, oil of cloves, and oil of peppermint. Cover with another pledget dipped in red gutta percha dissolved in chloroform, the proper size to neatly fill the cavity. Patients will often say, "this tastes like candy." It seems a great stretch of the imagination to believe that creosote tastes like candy, but if they think so I do not object.

You may think it very absurd in me to explain every little movement you are to make with the timid patient. It is these little things that imperceptibly accustom them to the use of instruments in the mouth, and your patience and kindness have given them such confidence in you that they are willing to do anything you ask. Remember how much there is at stake. You may be making patients for life. One cross word, one slip of an instrument lacerating the gum may

send your trembling patient howling from the chair where it will be very difficult to persuade her to return. You must be so guarded in every movement that you will never allow such an accident to occur. You must impress upon the minds of patients the necessity of having the teeth examined frequently, especially if they are inclined to decay rapidly. Neglect will cause very serious consequences, but as they will regard a visit to your office as something to be desired, you will have very little difficulty in persuading them to follow your advice. As they grow older and can appreciate the value of a beautiful set of teeth they will be still more desirous of visiting you. When the sweet doves that present their lovely little bills for your inspection, and the lovely large bills you present to their parents for their inspection will be very small remuneration for the great benefit you have conferred upon them.

ALUMINUM CROWN CORRESPONDENCE.

SALEM, Mass., July 13, 1898.

T. F. CHUPEIN, D. D. S., Editor.

Dear Sir:

In July DENTAL OFFICE AND LABORATORY I see reports of two aluminum crowns. I will add my experience.

I set an aluminum crown on lower first molar with cement, and at the same sitting filled distal surface of second bicuspid with alloy, filling, not touching, crown. In filling, several pieces of alloy clung to crown, but I carefully removed them. Four hours afterward patient came in and I found the crown turned to a frosted appearance, was hissing and quite hot. Sides of crown badly eaten and split. Removed crown with my fingers. Cement was intact, as was also the alloy filling.

I will forward you this crown by mail.

Sincerely,

ALFRED A. FROST, D. D. S.

ELIZABETH CITY, N. C., July 16, 1898.

Editor DENTAL OFFICE AND LABORATORY.

Sir:

I was very much interested in Dr. Todd's experience with aluminum crowns, as published in July number of DENTAL OFFICE AND LABORATORY, as I have recently had some annoyance of the same kind.

Several years ago I crowned the left lower third molar with an

aluminum crown. The patient is a married lady, about 35 years old now. About a week ago she came in my office to have me attend to two small places that had worn through. The crown was set with cement. I simply made a small under cut and filled the two little places with amalgam, and dismissed the case; but was very much surprised the next morning to receive a message from the lady that the entire crown was off, and wanted an engagement to have it put on. She brought the crown carefully wrapped up, and handed it to me. Instead of the two small holes in it the whole crown was nearly gone. What was left had the appearance of having been in some preparation which had dissolved or eaten it away. It was not thicker than ordinary writing paper. Just a band of it was left, which had been eaten into.

The cement was still intact on the natural crown. I had never heard of one doing this way before I saw Dr. Todd's article.

Very truly yours,

J. H. WHITE.

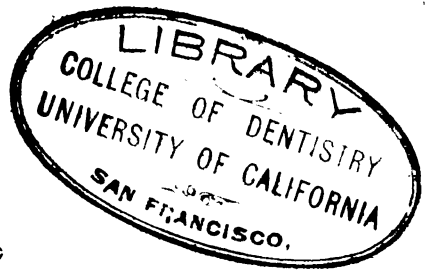
BIRMINGHAM, ALA., Aug. 2, 1898.

DENTAL OFFICE AND LABORATORY.

Gentlemen:

Have just seen Dr. Geo. L. Todd's (Philadelphia, Pa.), experience and the editor's remarks on aluminum crowns and amalgam in July issue of DENTAL OFFICE AND LABORATORY. Not long since I had a little experience with aluminum and amalgam. A Mr. F., about 38 years of age, of sanguo-bilious temperament, was wearing on second left lower bicuspid an aluminum crown with cusps filled with amalgam. Had given perfect comfort for about eighteen months. Early after arriving at his office, he noticed a peculiar taste and soon he felt some heat, and on investigating he found instead of his well-crowned tooth he had quite a chemical exhibition. He came to my office a few minutes later, and by this time the entire coronal portion was gone, leaving the amalgam on top. On the neck of the tooth was yet a portion of the crown, all frosted and sizzling, producing heat enough to be very uncomfortable for the surrounding tissue. With an excavator the remaining portion was removed and found to be entirely eaten up, and crumbled up between my fingers. The crown was set with phosphate which was in perfect condition, and it was only after wearing a small hole in the crown, and allowing the saliva to enter, that set it off. Immediate relief after removing the aluminum. Moral.—Never use amalgam with aluminum.

E. A. WILSON, D. D. S.



THE Dental Office and Laboratory.

FOURTH SERIES.

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No. 6.

SOME CAUSES OF TOOTH-LOSS OTHER THAN DENTAL CARIES.

WILLIAM H. TRUEMAN, D.D.S., PHILADELPHIA, PA.

A paper read before the Pennsylvania Association of Dental Surgeons,
April 14, 1896.

In recent years—especially since attention has been called to the probability of controlable systemic conditions being responsible for much dental trouble, heretofore, for the most part, the subject of local treatment only—pyorrhea and other diseased conditions of the teeth and surrounding tissues have received from the progressive element of the profession a large share of attention. Close attention to the current ideas expressed in the dental journals has impressed me that there is at the time need of more accuracy in discriminating between the varying forms of this disease and of those other diseases which at some stage of their progress closely simulate it; and of still other disorders, in all probability quite dissimilar, that are, I am impressed, frequently confounded with it.

The term pyorrhea alveolaris has ceased to be expressive of any particular line of symptoms, and is used to include alike the most trivial and innocent deviations from the normal and those so grave as to threaten not only the dental tissues, but even life itself. The attempt to correct this by grouping together under the generic term pyorrhea, various allied conditions and distinguishing these by adding other supposed to be suggestive terms, appears to me, while perhaps quite scientific, too often misleading, and too cumbersome to be practically useful. We want to know, when a case of successful treatment of pyorrhea alveolaris is reported, or a complete and discouraging failure confessed, what the conditions were that so readily yielded to or so obstinately resisted remedial measures. We want to know whether the result was due to superior skill or to more serious pathological conditions.

With some surroundings, a trifling tartar deposit may give rise to pronounced and alarming symptoms, in themselves, however, quite innocent, due, it may be, to concurrent systemic conditions—symptoms that will subside as those systemic symptoms subside, although the tartar may be undisturbed. The removal of the tartar in such cases is usually quickly followed by a complete return to a normal condition of the teeth and their surroundings. We would hardly consider this a recovery from pyorrhea, nor yet do I think we are warranted in assuming it to be a case of *cure while in its earlier stages*. Such cases have no significance in this connection. Although we recognize neglected tartar deposits a possible cause of grave sequences, we all have, I presume, seen, in neglected mouths, such deposits that have remained undisturbed for many years, without causing the slightest deviation from the normal; indeed, cases are reported, and I have seen many, where enormous deposits have been long tolerated without exciting other than mere mechanical irritation. I am impressed that we need most, at this time, to assist a clear understanding of the many causes of tooth-loss other than caries, a more comprehensive idea of what these causes are. We need to know and clearly distinguish, first, the normal from the abnormal; second, of the abnormal which have assumed pathological conditions, those due to local and those due to systemic causes; and, third, of the systemic conditions, those which act directly upon the tissues involved and those in which the tissues are merely subjective. They happen to be, for the time being, a weak spot; or, by a mere chance, as it were, happen to receive the impress of some systemic derangement that sooner or later localizes somewhere, and in some one of many possible forms. True, there may be a combination of causes. A primal local may invite to that spot some morbid condition that otherwise would manifest itself elsewhere, or that might have in a short time ceased to exist. Systemic conditions may permit a local irritation that would otherwise have been trifling, to become of serious moment. It is my purpose in this paper, as best I can, to give especial attention to those causes not allied to pyorrhea, although often confounded with it, sometimes, indeed, leading to it.

Normal causes of tooth-loss. Can we conceive of such a thing? Shall we admit that the loss of these important organs can possibly be a part of nature's plan? Is the loss of the hair in bald-headed families, families of which there are many, whose members, generation after generation, become, as we term it, *prematurely bald*, normal or abnormal? There are in these cases, for the most part, no

recognizable diseased condition to account for the early loss of the hair, nor yet, so far as I know, any suggestion that pathology plays any important part in accounting for its early or late change in color. We usually associate the snowy or silvery locks with advanced age. Is old age a disease? Is this accompaniment of it normal or abnormal? We may here bear in mind that age is development; in this connection years do not count. Many a man at fifty is as old, so far as development is concerned, so far as impaired vitality is concerned, so far as age is betokened by those physical changes comprehended by the term *infirmities of age*, as are others at eighty or ninety; all this, and the man is not sick. He has simply become old before his time.

While writing this, I am interrupted to examine a case that well illustrates this point. The patient has been in my care nearly thirty years. She came to me for her first dental work a Miss of a score of years, with as clean and well-kept a mouth as I have ever seen. Most of the work then done is still in good order, and during that long period I have seen her regularly at intervals of a few months. There is not now and never has been the slightest pathological expression. No inflammatory condition, no tartar or deposits other than those of the most innocent character; these have been promptly removed. The gum tissues have always been quite normal in character, and yet, there has been a gradual gum recession, especially at the posterior portions of either jaw, until the molar roots are exposed for nearly half their length. Since she has been in my care two teeth only have been lost, one extracted to relieve an irregularity, and another, a molar, the victim of caries that began on the denuded portion of the root, and in spite of repeated filling girdled the tooth, and so weakened it that it broke off. My experience teaches me that in this case the gum recession, accompanied by a like recession of the alveolar process, will continue until the teeth are no longer firmly held, and then will be set up a local irritation that will in all probability hasten their loss. This local irritation may assume a pyorrhoeal condition. Now what can be done in a case like this? We have here a healthy mouth and a healthy patient. Except that before appreciating the importance of dental attention several molar teeth were lost, there has been no neglect of this mouth, either by dentist or patient. Except upon the portions of the roots denuded by gum recession, caries has been effectually arrested. Looking backward and looking forward, I see but little that therapeutics could or can do. The judicious use of antiseptics will no doubt prolong the comfortable usefulness of these

teeth, but their loss from causes that to my mind are entirely non-pathological, unless some unlooked-for change takes place, is only a question of time.

Let us study more closely this which I have termed normal gum recession. In early life, in a typical healthy mouth, the gum margins form well rounded festoons, covering and extending beyond the junction of enamel and dentine; between the teeth, especially the molars and bicuspid, the gum tissue fully occupies the wedge-shaped interspace, leaving no vacancy for the accumulation of food, etc. As time goes on, shortly after the individual reaches full development, we note a change. The well rounded, easy lines characteristic of youth are no longer seen. There is a contraction of tissue; the features assume a more rigid form, the muscles become more prominent, the child becomes a man. The gums participate in this change, they lose the well-rounded margins; they do not so well cover the enamel junction, and little by little there is developed a wedge-shaped space between the teeth. This is practically a recession of the gums. To a greater or less extent it always takes place as the individual advances from youth to age. It is as natural and normal as is the development of the maxillary sinus. This change continues in progress through life; it is only, however, when the change is rapid, or when it becomes excessive, that it attracts attention and its normality is challenged. In many cases it may be so slight as to pass unnoticed; not every octogenarian becomes gray headed or bald.

In the same line we may refer to cases of absorption of the roots and filling up of the alveolar sockets, a process by which many teeth are expelled. The loss of antagonizing teeth frequently promotes this; it does not, however, always follow the loss of antagonizing teeth. At times it occurs without any apparent cause, and is only noticed when the stability of the teeth is compromised. A frequent accompaniment of this is the sharp, needle like points at the apex of the roots, seen only, of course, after extraction. In cases like this, to judge between the normal and the abnormal, to say exactly when the one ends and the other begins requires a close and careful study. To distinguish clearly and assign the effect to local or to systemic causes is another vexed question. So far, I have seen no study upon this subject that has favorably impressed me as being at all thorough or helpful. The time comes in nearly all these cases when a pathological condition supervenes. The pockets between the teeth favor the lodgment of food, etc., the condition of the gum margins favor deposits of various kinds, as a result, the gum margins

become unduly susceptible to inflammatory conditions ; or the loss of firmness of the teeth themselves eventually induces an unhealthy condition that must be met and properly treated.

We say " must be met and properly treated," but we are here seriously hampered. Can we cure these cases while the conditions which have caused the trouble still exist? Is it possible to undo that which has been done? Is it possible, by any available means, to prevent these changes from progressing? Frankly, I know of none.

Just as at one period of life an individual may, as we say, *age rapidly*, and later may acquire new vigor, so do these conditions progress rapidly at times, at times remain stationary, and at other times greatly improve ; but can these wasted tooth-sockets or this lost gum tissue be restored? The susceptibility to inflammatory conditions may be at one time marked, and at another less so, as the result of remedial treatment, or as the result of unknown causes. Our art can do much, but cannot place teeth thus weakened in as good a condition for comfortable usefulness as they formerly were ; in some cases, indeed, we are utterly powerless to hold in check these destructive processes. I see many of these cases. They are not, as I understand it, at least primarily, pyorrhea ; neither are they due to tartar deposits of any kind or character ; neither are they due to neglect on the part of either dentist or patient. They are as inexplicable as are a thousand and one other ailments from which humanity suffers. As soon as it is on the market, I shall prescribe for all such cases frequent and large doses of the elixir of youth ; until then I propose to do for them as I have done, the best I know how with the means at command.

It is not always, however, that this which I have termed normal gum recession becomes pathological. I have seen and see many cases where it is going on steadily without the slightest evidence of any other abnormality than a loss of tooth-supporting tissue. I have seen it so progress until the teeth have been dislodged by a slight accidental strain, from sneezing, during mastication, etc. We may here ask, Why do non-antagonizing teeth in some cases elongate and in others not? We see illustrations of this in the same mouth with no visible reason for the difference. What causes absorption of the roots of permanent teeth? I have removed many such, generally, but not always, from patients of advanced age, the root portion of which was not half the length they should normally be. Is this an abnormal action, or is it normal? As an opposite of this, we have various enlargements of the roots, some that do not seemingly im-

pair the usefulness of the teeth, and others again that, directly or indirectly, cause their loss. Again, in the same line we note bony deposits or formations of various kinds within pulp territory. While we may, properly perhaps, assign these causes of tooth-loss to perverted normal activity of the bone formers, it is a vexed question whether the cause of this perverted local activity is local or systemic; and we may, I think, safely say that at present its prevention and largely its control is beyond our power.

Primarily, all these causes of tooth-loss are normal, they are systemic; at times local causes later become a complication. Just where to draw the line between nature, perverted nature and disease is, so it seems to me, an open question.

Where pathological conditions exist, how to decide whether due to local or systemic causes, is indeed at times a vexed question, a very important one, however, as upon this decision intelligent treatment must largely depend. Where a tooth is loosened by a blow, and by the same accident the supporting tissues are so injured that during the process of repair, as a result of associated pathological conditions, the tooth is expelled, we have a typical case of a purely local cause of tooth-loss. On the other hand, the loss of teeth resulting from some such disease as scurvy or the action of some such remedy as mercury furnishes examples of tooth-loss by pathological conditions of a purely systemic origin. Closely allied to the first are cases where, from mal-occlusion or from the loss of a number of teeth of the series, certain teeth have imposed upon them an undue share of work. There is apt to be set up in these cases changes that will as surely result in pathological conditions endangering the life of the teeth as do those which result from a sudden blow, although the pathological conditions may be different and the final result much longer delayed. Relieving this undue pressure by mechanical means, correcting the mal-occlusion or inserting artificial substitutes, while still further prolonging the life of the endangered teeth, does not always stop the destructive process, and nothing can undo the mischief that has been done. These suggestions will, no doubt, call to your mind numerous other cases that, in some respects, bear to these a more or less close resemblance.

Now, in these cases the original injury is purely a local one. It may indeed continue purely local until the end. Let us see how easily systemic conditions may step in and control the result.

It is, I think, generally admitted that the oral cavity always contains pathogenic germs. If not always, they are so frequently pres-

ent, or so liable to be present, that they must always be reckoned with. It is also, I think, generally admitted that the secretions of a healthy mouth are inimical to the well being of these germs. That is, if the secretions of the mouth are normal, they are destructive to all these germs exposed to their influence. Now, as the result of systemic conditions, that may perhaps continue for a short time only, the oral secretions may become abnormal, and for the time being to these germs inert. There is always a risk that at such times these germs may find, at some point of local injury, a lodgment where they may be free from the destructive influence of the normal secretion after the period of their abnormality has ceased. Unquestionably, this frequently occurs, and is one of the indirect ways by which local injuries are influenced by unconnected systemic conditions, and may also explain some mysterious cases of ebb and flow in the progress of diseased conditions in the mouth. This, I consider, is the real danger to be feared from accumulations of salivary tartar deposits. They are in themselves rarely hurtful; as a cover and protection to these omnipresent destructive agents, they are in all cases a menace to the well being of the teeth.

Much has been written of late enforcing the importance of keeping the teeth absolutely free from these deposits, much, in my judgment, has been thoughtlessly written. In the first place, in many mouths it is a practical impossibility to maintain this freedom from deposits insisted upon. They are beyond any means the patient can safely employ. They collect so rapidly that nothing short of daily or weekly visits to the office will suffice, and this in a large majority of cases is impracticable. And again, an attempt to carry out so strict a regime would probably prove as abortive of good as did the treatment of alveolar abscess a few years ago, by pumping creosote into the fistula every day, and from the same cause.

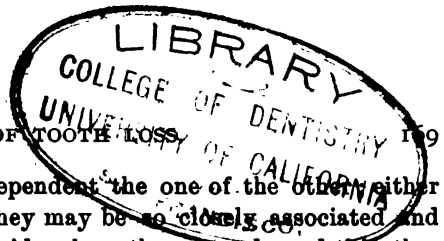
Again, we find in many cases the accumulation of salivary tartar is in a measure self-limiting; we find but little more at the end of three months than we find at the end of one. That it is to any great extent the cause of pyorrhea, or a tooth-loss, unless greatly neglected, I do not think. The fact so frequently noticed, now and in the past, that pyorrhea occurs where no tartar is present, and that large neglected accumulations of tartar are present with no pyorrhea, is sufficient evidence that as cause and effect they are not closely related. If its harmfulness was as great as some contend, the number of unhealthy mouths would be vastly increased. As before stated, I consider its hurtfulness is mainly in covering and protecting more

potent agents, and practice, and urge that every effort be made to keep the teeth as free from it as practicable. It is useless, however, to insist upon impossibilities. It is an open question in those cases where salivary tartar and receding gums are especially marked, whether even here we have an exhibition of cause and effect. We know that gum recession exists without unusual deposits of tartar. We also know that tartar deposits exist without gum recession. We still farther know that this tartar is more prone to deposit in places where the secretions stagnate, and that the wasting of gum tissue, especially on the lingual aspect of the lower incisors, form a pocket furnishing conditions favorable to these deposits. Beyond this we do not know. The cause of these deposits, why marked in some mouths and entirely absent in others, why quickly deposited at times and at other times less so, I never have seen explained, nor yet do I recollect any suggested means at all plausible by which their formation may be prevented.

Fouchard, in 1728, following his predecessors, urged their frequent removal, and in this year of grace 1896, we seem to have no better method, notwithstanding the progress which our science is supposed to have made during the intervening one hundred and sixty-eight years.

In the so-called sanguinary tartar we have another mystery, and here again we are puzzled to know whether it is the cause or result of the lesions usually associated with it; and here again we find our science has failed to make any material advance since the days of Hunter and Berdmore. Is this peculiar deposit the result of local or systemic causes? What determines its formation in some cases as a ring, to a greater or less extent encircling the neck of the tooth just beneath the gum margin, in others encroaching to a greater or less extent over the surface of the root, either as a continuous coating or in detached crystal-like bodies? Who can tell? Indeed, who can tell whether it proceeds or follows that break of continuity, an invariable accompaniment of its presence, between the periosteum of the root and that of the alveolar socket, a break of continuity that is seldom if ever healed.

Between salivary and sanguinary tartar there is this very marked difference, the first forms over the gum tissue, seldom encroaching, unless there is a marked pre-existing lesion, between the tooth root and the gum; the latter is always found beneath the gum tissue, and between it and the root, in many cases under conditions that suggested it to have been the cause of the space it occupies.



They appear to be quite independent the one of the other, either may be found quite alone, or they may be so closely associated and blended that it is difficult to decide where the one ends and the other begins. Indeed at times we are at a loss to decide whether the deposit is of salivary or sanguinary origin. So far as I know, we have no suggestion for its removal other than by mechanical means. To a slight extent various agents, so called solvents, appear to assist in its removal, not, I think, because of any solvent action upon the tartar itself, but by breaking up its attachment to the root. I question very much whether any agent exercises over it, under the circumstances under which it must necessarily be used, any real solvent action. So far as prevention is concerned, I recall no suggestion promising practical value. Treatment recommended is for the most part local. First, the mechanical removal, so far as is possible of the deposits, followed by astringents and antiseptics. All agree that constant watchfulness and care is necessary to prevent a relapse. Of the two forms of tartar deposits, this is by far the most to be feared. It strikes at once a part vital to the continued usefulness of the tooth, and opens a path to deep-seated germ infection exceedingly difficult to combat. It is a very serious cause of tooth-loss, and one exceedingly difficult to control.

I presume a volume might be written upon this interesting subject; but before that can be usefully done, there is a great deal of supposed knowledge that must pass from the theoretic to the practical stage. Until we know more of *the power behind the throne*, attempts to treat many conditions that appear to be of systemic origin will continue to be merely empirical, and in the meantime, perhaps, we will do better to intelligently use those local means that have been found of benefit. Little by little close and patient study will do much in the future as it has done in the past, to enlarge the opportunities of our science in curtailing tooth-loss from these as from other causes. Those acquainted with the writings of Hunter and Berdmore and others of that period, will note that in treating these conditions, our profession has made but little advance. We have improved and more delicate instruments; we have acquired perhaps more manipulative skill; we have decidedly more effective therapeutic agents. Beyond this, I am impressed the advance is but trifling.

So far as preventive means are concerned; so far as the real knowledge of the why and wherefore of their presence is concerned, a century and a quarter between their day and ours has borne but little fruit. It seems to have been so far a sterile or a neglected field.

Of the systemic conditions that act directly upon the tissues concerned in supporting the teeth, but little need be said. They are for the most part well known and easily recognized. The so-called scurvy in its various forms; syphilis; the various nerve or brain disorders, as for instance locomotor ataxia; malaria or the effects of potent drugs; or the more subtle effects of wasting diseases, are to all well informed practitioners a well known song. Of late attention has been called to a systemic condition heretofore scarcely suspected that is supposed to be the cause of much trouble and of serious tooth loss. I allude to the gouty or uric acid diathesis. The theory is, that at times uric acid is set free and circulates in the nutrient system; that this uric acid has a tendency to localize at certain points, and when thus localized may prove a serious irritant. It is credited with at times causing rheumatism, at times peculiar skin diseases, at times combining with other elements and forming concretions, notably at the joints. Just how it affects the teeth does not seem to be well understood, possibly the most plausible theory is that suggested by Dr. E. C. Kirk, of Philadelphia. He suggests that the uric acid is inert to normal tissue, but as it circulates with the blood current, on reaching territory slightly irritated, it is liable to localize and prove a decided irritant. A primal dental irritation, perhaps of itself of no moment, may be sufficient to detain from the circulation a small portion, a mere atom of uric acid, that would otherwise harmlessly pass by. Its presence increases the irritation, and as a result we have a pathological condition, a pathological condition that may continue long after the uric acid which really caused it, has disappeared.

In a thousand and one ways, a cold, an accident during mastication, the constant impact of occlusion, etc., may be received the primal irritation in the surroundings of a tooth that invites this mischievous agent. Just what form the final irritation may assume depends largely upon circumstances. Should it be near the apex of the root and the surrounding tissues normal, we may have one of those mysterious abscesses of which we have so long read, an abscess upon a vital tooth. It may be slight and run so benign a course that its dental origin is not suspected; or it may be of so serious a character that several neighboring teeth may be purposely devitalized, one after the other, on the supposition that they are responsible. It is a peculiarity of abscesses from this cause, that while they follow the usual rule of reaching the surface through tissues of least resistance, they are apt to reach the surface at a point remote from the seat of injury. So firmly fixed is the idea that a dental abscess must have

associated with it a devitalized pulp, there is no question but that the usefulness of many teeth have been impaired, and many extracted in the effort to relieve an abscess of this character. It is so recent that attention has been called to this that we can hardly as yet define the diagnostic differences between an abscess of uric acid origin and one resulting from a devitalized pulp; it is well, therefore, to always consider this before drilling into a tooth apparently vital. I say apparently vital, for notwithstanding the many suggested rules for determining whether a tooth is vital or not, there are cases where the question of vitality can only be settled by the drill. It is better to first treat by palliative means all doubtful cases.

Again, it has been suggested that uric acid has much to do with those forms of tartar deposit usually classed as sanguinary.

It has been suggested that such deposits may find lodgments upon the tooth root near its apex, the tissue between the point of deposit and the gum margin being quite normal. It has been suggested that germ infection may take place under these conditions, giving rise to deep seated pyorrhea. While it is by no means improbable, it requires still further study before acceptance. I have been impressed that the uric acid abscess usually discharges a serum rather than pus; that the discharge is less in quantity, quickly ceasing, and unless complicated, without leaving a fistula. If these observations be correct, they indicate the absence of that infection always associated with abscess from a devitalized pulp.

Again, the uric acid may cause severe pain of a neuralgic character. It may be confined to one, a few, or may involve all the teeth without exhibiting any visible lesion. I have met with several cases presumed to be of this character from the fact, that the systemic treatment known to be useful in combating the uric acid diathesis gave prompt relief after other means had repeatedly failed.

As suggested by Dr. Kirk, this is perhaps the only evidence we can rely upon in proof of uric acid causing these troubles. Its presence or absence in deposits upon the tooth root is of little moment, as it is found in such deposits not of a pernicious character, and as before remarked, it is quite within the range of possibility that the uric acid really responsible for the trouble, may have been within adjacent tissues and may have passed away before the trouble caused by it is discovered. Failure to respond to treatment is only presumptive evidence, however, of its absence. We have in medicine no absolute specific for any disease. If a suspicious syphilitic case favorably

responded to mercury, we are safe in assuming the suspicion to have been correct, while failure to respond leaves us still in doubt.

It will probably be some time before we can outline the treatment to be pursued in these cases. Our medical brethren have long worked upon the problem without fully solving it under far more satisfactory conditions than the dentist can ever expect to be favored with. A patient threatened with death or prolonged suffering, is far more tractable than one who sees certain relief by a trifling and painless operation, followed by so slight a subsequent inconvenience as is supposed to be by the uninitiated, associated with wearing an artificial denture. Our patients as a rule are not willing to adopt a restricted diet, or to submit to constant dosing. It is difficult indeed to get them to regularly attend to the mere mechanical routine of the oral toilette with the same care they give to the more visible portion of their person; a clean, well adorned face and neglected teeth are not uncommon among those we recognize as regular patients. Whether the dentist is called upon to act the part of a lady's maid or a gentleman's valet, in doing for their patients that which they are quite as well able and can better do for themselves, is a question each must decide for himself. Important as are the menial offices around the sick bed, except in an emergency, it is no part of the medical attendant's duty to perform them. He can, as we can, direct and advise. The power, however, to compel obedience is limited, ours more so than his. Patients are not as a rule the pliable things some of our writers would have us believe.

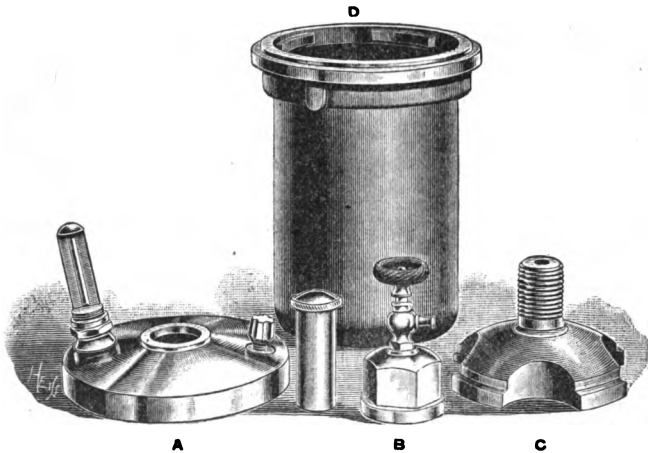
While our profession has fairly well compassed the prolonged usefulness of teeth endangered by caries, the other causes of tooth-loss still baffle our skill. Let me suggest in closing that careful, thoughtful study of these cases and earnest work in the effort to reach the initial lesion and trace its progress may do much in lessening tooth-loss from causes other than caries.

A VALUABLE HINT.

To those who use the "Lyon Vulcanizer" we would offer the following simple and valuable hint: After the flask is introduced into the pot D, the clamp C inserted and the cover A set in place, before screwing down the cap B, *sprinkle the packing of this with finely powdered soapstone or French chalk.* This is readily and evenly done by turning the cap B upside down. It is then screwed down and the gas lighted. We suggest this, as we have found the sprinkling of

soapstone in the place we have indicated, much facilitates the opening. The soapstone should be used fresh, each time, and the old nicely brushed off as, if left, it will form a cake and defeat the object.

While speaking of this vulcanizer we must give it our hearty endorsement. We have never had a vulcanizer which gave us so much satisfaction and so little trouble. It never leaks, and we have observed there is an entire freedom from the scale which collects in copper pots. Being made, as this is, of "gun metal," may be the reason of this. Since we have been using it we have never had a porous plate. This may be attributed to the degree of heat we have



employed to vulcanize. We rarely permit the mercury in the thermometer to register more than 280° to 300° degrees, and we keep it at this temperature for $1\frac{1}{2}$ hours, after the mercury reaches this point. The vulcanizer will accommodate *three cases*, but we prefer to vulcanize "in steam," and for this purpose we set the flask or flasks, on the ring of an old flask placed on the bottom of the pot and only put about a teacup of water in the pot, just sufficient to about cover this ring.

The vulcanizer is the easiest to manipulate. When the cases are vulcanized it is only necessary to blow off the steam, unscrew the nut or cap B, take off the cover A and the clamp C, and the machine is ready for other cases.

[TWENTY-SEVENTH PAPER.]

LEADING QUESTIONS AND ANSWERS FOR DENTAL STUDENTS.

By THEODORE F. CHUPEIN, D.D.S., Philadelphia, Pa.

Q Does tartar have any injurious effect on the teeth?

A. It does not; on the contrary, we find those portions of the teeth which are covered by tartar preserved from decay, and it has been noted that decayed places in the teeth which became covered with this deposit seemed to have been arrested from the further in-croachment of caries. This may have given rise to the opinion sometimes entertained that it should not be removed.

Q. Is this not a good argument for its non-removal?

A. No, because such cases as we have instanced are not general but only occasional, and as the presence of the deposit is always pernicious, by the loosening of the teeth, the irritation of the gums, the fetor of the breath, the gradual destruction of the alveolar process, the tartar should be removed.

Q. Are these the only arguments brought forward for the removal of the tartar?

A. No other effects are produced by its presence. Tumors of the gums; excrescences of the gums; a flabby hypertrophied condition of the gums; necrosis and exfoliation of the bones of the jaw hemorrhage of the gums; derangement of the digestive apparatus; catarrh; cough; diarrhoea; diseases of the maxillary sinus and nose; pains in the ears; headache; melancholy; a disposition towards hypochondriasis; anorexia, etc.

Q. What is Anorexia?

A. It means a loss, or diminution of appetite, sometimes amounting to an aversion of food.

Q. How does the presence tend to loosen the teeth?

A. It is deposited on the teeth little by little, forcing the gums away from them; and its irritating presence causing the absorption of the bone or alveoli. The teeth are thus deprived of their natural sockets and supports, having little to retain them in their positions and thereby become extremely loose.

Q. Are these results always present?

A. No, sometimes the presence of tartar on the teeth causes no inconvenience, nor does it always produce the sequences we have enumerated; the temperament of the individual, the state of the general health, the quantity and consistence of the deposit, have much to do with the extreme cases we have noted.

Q. What should be impressed on patients where the tartar shows a disposition to deposit in large quantities?

A. The observance of great cleanliness, and the having the deposit frequently removed?

Q. What more may be said of tartar?

A. Almost as many teeth are lost by the permission of the accumulation of tartar as by caries. The gums become so sore from its presence that the proper care and cleanliness are not observed and performed, because of the pain inflicted. In this way the accumulation increases in great proportions, and tooth after tooth loosens and falls out; besides this, a fetid discharge occurs around the teeth, or deposit, this mixes with the food and is swallowed and taken into the stomach, disarranging the digestive functions and contaminating the breath to such a degree that sometimes the whole apartment becomes impregnated by the insufferable odor.

Q. How may the removal of the tartar from the teeth be regarded?

A. As an operation of great importance to the teeth as well as to the general health.

Q. Do patients generally consent to the operation?

A. No. Through motives of fear of pain, the opinion, (even among persons well informed) that since nature put it there that it should not be removed, the feeling of strangeness or a little roughness when it is first removed, and other erroneous ideas, many patients object to its removal.

Q. How should these opinions be refuted by the Dentist?

A. That it is an operation which causes no pain whatever, that it is as silly to bring forward the argument that "since Nature put it there it should remain and not be removed," as to say that the finger nails should not be cleansed or that the face and hands should not be washed because of the deposit of dirt, or the body should not be bathed to remove the epithelial scales thrown off on the surface of the skin which would ultimately close the pores, or any argument against cleanliness.

Q. Should any roughness be felt on the teeth after the removal of the tartar?

A. There should be no roughness felt on the teeth. The roughness indicates that all particles of tartar have *not* been removed. The teeth should be left perfectly smooth after the operation.

Q. Is this always possible?

A. It is when thoroughly done. The free flow of blood interferes

with the operation, but after the first sitting a better sight can be obtained.

Q. Is there any way of preventing the flow of blood so as to complete the operation thoroughly?

A. It has been proposed, after the bulk of the tartar has been removed on the first sitting, to apply the rubber dam over all the lower teeth, (these being more frequently encrusted) and then by working the rubber dam down on the necks of the teeth and ligating each tooth, every nodule of tartar is exposed and the operation may proceed without the interference of the blood.

Q. How is the operation performed?

A. By the aid and use of instruments called "Scalers."

Q. How are these constructed?

A. With narrow sharp and thin blades, bent at different angles, so as to readily approach the places where the deposit adheres to the teeth.

Q. How are the blades made?

A. With "push" or "draw" cut edges so that the deposit may be pulled off or pushed off.

Q. How is the tartar removed?

A. When it is excessive, covering, as it sometimes does, the entire lingual surfaces of the lower front teeth, so as to completely obliterate their form, the tartar may be first broken away with any form of enamel chisel that will apply. These particles are then removed from the mouth by rinsing with water. The scalers are then gently insinuated beneath the deposit and peeled or scraped off by an upward pull, if on the lower teeth. One by one the teeth are thus cleaned. Sometimes the tartar is very firmly adherent and the pull fails to dislodge it. A push scaler should then be tried, as sometimes this force will remove it easily where the pull force was ineffectual. Blood flows very freely and profusely during the operation necessitating the constant rinsing of the mouth to be able to see the remaining nodules. Sometimes, when the bulk of the deposit is removed, it will be necessary to dismiss the patient for another sitting on account of this excessive flow of blood; but in case this is inadmissible, it has been proposed to punch and apply the rubber dam over all the teeth which are to be cleansed, and in this way dam off the blood and thoroughly cleanse the teeth of all deposit.

Q. What style instruments would you use for the purpose?

A. Thin, small-bladed delicate instruments are best suited for the operation, some with their blades made for scraping with "a draw

motion," others with their blades made with "a push motion." The blades, at their widest diameter, should not be more than one-sixteenth of an inch wide, gradually tapering to a fine point, and with a bevel by which they are readily kept sharp. Others should be in the form of the "Sickle" and quite thin, so as to pass readily between the teeth. In removing the tartar from the lower oral teeth, the deposit is readily seen and attacked by having the patient open the mouth well, the operator standing behind the patient, and by means of the mouth mirror shining reflected light on the teeth. The mirror while it aids in this, also assists in keeping the patient's tongue away from the surfaces operated on. This position of the operator, at the back of the chair is not always practicable. He will be obliged sometimes to stand at the side and partly in front of the patient, on account of the inability of the patient to open the mouth wide or of the conformation of the jaws, working on the lingual surfaces of the teeth by the reflected light of the mirror.

Q. What is particularly recommended in this operation?

A. That every particle of tartar be removed, and that the cleansed surfaces be afterwards gone over by means of the small polishing brushes, used in a suitable mandral, in the hand-piece of the dental engine.

Q. Are any other means used for the removal of tartar than instruments?

A. Chemical agents have been used and suggested, such as mineral and vegetable acids.

Q. Would not these agents, especially the mineral acids act on the teeth as well as the tartar, if used?

A. This is probable, yet only such of these acids are employed, as are known to have less affinity for tooth substance than for tartar. In the removal of this deposit the use of such agents should be avoided.

[TO BE CONTINUED.]

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

The thirteenth annual meeting of the National Association of Dental Faculties was held at the Grand Union Hotel, Saratoga Springs, commencing August 1, 1896.

The following colleges were represented:

Birmingham Dental College—T. M. Allen.

University of Denver, Dental Department—W. E. Griswold.
Columbian University, Dental Department—H. C. Thompson.
National University, Dental Department—J. Roland Walton.
Allanta Dental College—Wm. Crenshaw.
Southern Medical College, Dental Department—Frank Holland.
Chicago College of Dental Surgery—T. W. Brophy and Louis
 Oitofy.

Northwestern College of Dental Surgery—L. L. Davis.
Northwestern University Dental School—Theo. Menges and Geo.

II. Cushing.

Indiana Dental College—G. E. Hunt.
Louisville College of Dentistry—Francis Peabody.
Baltimore College of Dental Surgery—B. Holly Smith.
University of Maryland, Dental Department—F. J. S. Gorgas.
Boston Dental College—J. A. Follett.
Harvard University, Dental Department—Thos. Fillebrown.
University of Michigan, Dental Department—J. Taft.
Detroit College of Medicine, Dental Department—G. S. Shattuck.
University of Minnesota, College of Dentistry—Thos. E. Weeks.
Kansas City Dental College—J. D. Patterson.
Western Dental College—D. J. McMillen.
Missouri Dental College—A. H. Fuller.
University of Buffalo, Dental Department—W. C. Barrett.
New York College of Dentistry—Frank Abbott.
Cincinnati College of Dental Surgery—W. T. McLean.
Ohio College of Dental Surgery—H. A. Smith.
Cleveland University of Medicine and Surgery, Dental Department—S. B. Dewey.

Western Reserve University, Dental Department—H. L. Ambler.
Pennsylvania College of Dental Surgery—C. N. Peirce.
Philadelphia Dental College—T. C. Stellwagen and S. H. Guilford.
University of Pennsylvania, Dental Department—E. C. Kirk.
University of Tennessee, Dental Department—J. P. Gray.
Vanderbilt University, Dental Department—A. W. Morgan and
 W. H. Morgan.

University College of Medicine, Dental Department—L. M.
 Cowardin.

Royal College of Dental Surgeons of Ontario—J. B. Willmott.

The following colleges were elected to membership :

Howard University, Dental Department, Washington, D. C.—
 James B. Hodgkin.

Marion Sims College of Medicine, Dental Department, St. Louis, Mo.—J. H. Kennerly.

Dental Department of Tennessee Medical College, Knoxville, Tenn.—R. N. Kesterson.

The following applications for membership were reported favorably by the Executive Committee for final action next year:

University of Omaha, Dental Department, Omaha, Neb.; Ohio Medical University, Dental Department, Columbus, O.; Baltimore Medical College, Dental Department, Baltimore, Md.; Dental Department of Milwaukee Medical College, Milwaukee, Wis.

The New York Dental School announced its intention to complete its application next year.

The report of the secretary stated that there were in the United States fifty-three institutions teaching dentistry or conferring the dental degree, as follows: Dental schools in active operation, forty-six; organized during the year, two; in course of organization, one; corporations conferring the dental degree, four. Of the dental colleges, thirty-six were now members of the association, eight had applications for membership pending, two had signified their intention of applying, and the two newly organized have announced in their catalogues their intention to comply with the rules of the association.

The report of the Committee on Schools, presented by its chairman, Dr. Follett, stated that reports had been received from thirty-five schools as to their equipment under the resolution adopted last year. These reports showed that the schools were well provided with lecture-rooms, and in most instances with ample laboratory and dispensary accommodations, with sufficient and appropriate appliances. They indicate a broadening in the general course of instruction, as well as fuller courses in all departments. Several colleges have recently added courses in bacteriology and extended their work in histology and pathology in practical ways. During the year 1895-1896 the number of matriculates at the thirty-five colleges reporting was 5532; graduates, 1363.

Mr. Melville Dewey, secretary of the Board of Regents of the University of New York, appeared before the association by invitation of some of the members, and gave a masterly address on the needs of the movement for higher education in professional ranks. Incidentally, Mr. Dewey explained some of the details of the system pursued in New York, and stated that, greatly to the surprise of those in charge of the various professional educational institutions in

the state, the number of students had steadily increased since the higher requirements had been put into force by the Board of Regents.

Among the more important legislation enacted by the association were the following :

REGULATING THE ADMISSION OF STUDENTS.

Preliminary Examination.

The following preliminary examination shall be required of students seeking admission to colleges of the association :

----- HIGH SCHOOL.
-----, 189

To the Faculty of -----

M ----- desires to present ----- self as a candidate for admission to the Course of Dentistry, -----
He has pursued in this school the branches against which numbers appear—the numbers being the standings upon a scale of 100. Our course requires five recitations or exercises weekly, in each branch. Our terms are ten weeks in length.

PRELIMINARY.

- | | |
|--------------------------------|-----------------------|
| 2 terms Orthography, standing. | 2 terms Grammar. |
| 2 terms Reading, standing. | 2 terms History U. S. |
| 2 terms Writing. | — |
| 2 terms Arithmetic. | 14 |
| 2 terms Geography. | |

These are required in all cases, and fourteen counts given for the same.

ELECTIVE.

- | | |
|---|--------------------------------|
| 3 terms University Algebra, through Quadratics. | 1 term Commercial Arithmetic. |
| 3 terms Geometry, plane and solid | 2 terms Astronomy. |
| 2 terms Physiology. | 2 terms Geology. |
| 2 terms Physical Geography. | 2 terms Natural History. |
| 1 term Botany, with analysis of forty plants. | 1 term Political Economy. |
| 3 terms General History. | 2 terms Drawing. |
| 3 terms Natural Philosophy. | 3 terms German. |
| 3 terms English Literature. | 3 terms Greek. |
| 2 terms Civil Government. | 3 terms Latin Reader, Cæsar. |
| 2 terms Rhetoric. | 3 terms Cicero, four orations. |
| 2 terms History of England. | 3 terms Virgil, six books. |
| 3 terms American Literature. | 1 term Book-keeping. |
| 3 terms Chemistry. | 3 terms French. |
| | 2 terms Manual Training. |

(After session of 1901-1902 U. S. History becomes elective, and entitles to 2 credits.)

FOR THE SESSION OF 1897-98.

Preliminary	14 counts.
Elective	18 counts.
Total	32

FOR THE SESSION OF 1898-99, 1899-1900.

Preliminary	14 counts.
Elective	27 counts.
Total	41

FOR THE SESSION OF 1900-01.

Preliminary	14 counts.
Elective	36 counts.

Total 50

For the session 1901-1902 and thereafter no Preliminary credits; forty-eight credits from the studies classed as elective.

When the text-book mentioned has not been completed, the exact amount of work done should be stated.

The candidate above-named is recommended as of good moral character, studious habits, and, judging from the past records, able to carry forward the work of a dental college course.

The rules for the admission of students take effect with the session of 1897-8.

— — Principal.

ADMISSION TO ADVANCED GRADES ON CERTIFICATES.

The colleges of this association may receive into the advanced grades of Juniors and Seniors only such students as hold certificates of having passed examinations in the studies of the freshman or junior grades respectively, such certificates to be pledges to any college of the association to whom the holders may apply that the requisite number of terms have been spent in the institutions by which the certificates were issued.

INTERMEDIATE CERTIFICATE.

Place Date
This certifies that _____ has been a member of the _____
class in the _____ during the term of _____

He was examined at the close of the term in the required studies, as stated herein, and is entitled to enter the

Freshman Year

Junior Year.

[List of Studies]

[List of Studies.]

This certificate shall by correspondence be verified by the dean of the college by which it was issued. Without such certificate no student shall be received by any college of this association for admission to the advanced grade, except on such conditions as would have been imposed by the original school, and these to be ascertained by conference with the school whence he came.

LIMITING THE TIME FOR THE RECEPTION OF STUDENTS.

No member of this association shall give credit for a full course of students admitted later than ten days after the opening day of the session, as published in the announcement.

In case one is prevented by sickness, properly certified by a reputable practicing physician, from complying with the foregoing rule, the time of admission shall not be later than twenty days from the opening day.

In cases where a regularly matriculated student, on account of illness, financial conditions, or other sufficient causes, abandons his studies for a time, he may re enter his college at the same or subsequent session, or where under similar circumstances he may desire to enter another college, then with the consent of both deans he may be transferred, but in neither case shall he receive credit for a full year unless he has attended not less than seventy-five per cent. (75%) of a six months' course of lectures.

ATTENDANCE, EXAMINATIONS.

Attendance upon three full courses of not less than six months each in separate academic years shall be required before examination for graduation. The year shall be understood to commence August 1, and end the following July 31.

Beginning with the session of 1896-1897, the examinations conducted by the colleges of this association shall be in the English language only.

A student who is suspended or expelled for cause from any college of this association shall not be received by any other college during that current session. In case the action of the first college is expulsion, the student shall not be given credit at any time for the course from which he was expelled. Any college suspending any student shall at once notify all other members of this association of its action.

APPLICATIONS FOR MEMBERSHIP.

Applications for membership in this association shall be made in writing, favorably indorsed by the faculties of two or more colleges of the association and the board of dental examiners of the state in which it is located.

Such application shall then be referred to a special committee of three which shall be appointed by the chair upon each application. The duty of this committee shall be to visit the school applying during its session, personally examine its facilities for teaching, methods of instruction, and efficiency of the faculty, and report to the executive committee, which report shall, if favorable, be acted upon.

Each application shall be accompanied by a sum of money sufficient to defray the expenses of the special committee.

The constitution was so amended that hereafter it will require a two-thirds vote instead of a majority to elect new members.

The following resolution, offered by DR. PEIRCE, was on motion adopted :

WHEREAS, In view of various reports frequently being circulated derogatory to the character of certain schools without any one being willing to prefer charges sustaining such statements,

Resolved, That the Executive Committee be and is hereby authorized to exercise full power to investigate all such innuendoes or charges by visiting the school or schools, or authorize some one to perform this duty ; summoning witnesses, etc., in order that all such statements shall be sustained or proven false.

Resolved, That a sum to be determined by the officers, president, secretary, and treasurer, be and is hereby appropriated for the purpose of paying expenses essential to the carrying out of the provisions of the above resolution.

The following communication from the National Association of Dental Examiners was read and on motion adopted :

Resolved, That this association requests the National Association of Dental Faculties to enact a rule prohibiting colleges from receiving beneficiary students recommended by state boards and associations.

The following, offered by DR. ABBOTT, was adopted :

Resolved, That the committee of three appointed by the chair to report on applications for membership shall determine and report to this association at its next meeting the minimum requirements of such colleges as desire to become members of this association as to length of course, plant, equipment, facilities for teaching, and the number and efficiency of its faculty.

DR. BROPHY offered the following, which was adopted :

Resolved, That a graduate of a recognized dental college, who applies to a college of this association for the degree of Doctor of Dental Surgery or Doctor of Dental Medicine, shall complete one full course of instruction in said college and comply with all other requirements of the senior class.

The following lie over till next year for final action :

Offered by DR. BARRETT :

Resolved, That after the regular session of 1897-98 the annual college term for the members of this association shall be seven full months.

Resolved, That it is advisable that the National Association of Dental Faculties in future meet in connection with the National School of Dental Technics at a time of year when the colleges are in session, and before the time for the issuance of the annual catalogues.

A committee, consisting of Drs. Patterson, H. W. Morgan, and Kirk, appointed to consider the advisability of adopting the academic cap and gown for commencement day, reported in favor of adopting the intercollegiate system and in favor of lilac as the distinguish ing color for dental schools. Laid over till next year.

The following were elected officers for the ensuing year: J. P. Gray, Nashville, Tenn., president; Truman W. Brophy, Chicago, vice-president; Louis Ottogy, Chicago, secretary; Henry W. Morgan, Nashville, Tenn., treasurer; J. Taft, Cincinnati, Thomas Fillebrown, Boston, and B. Holly Smith, Baltimore, Md., executive committee; H. A. Smith, Cincinnati, Thomas E. Weeks, Minneapolis, and J. D. Patterson, Kansas City, Mo., *ad interim* committee.

The newly elected officers were installed, and the president announced the standing committees as follows: S. H. Guilford, Philadelphia, Pa., J. B. Willmott, Toronto, (Canada), Theodore Menges, Chicago, Ill., L. M. Cowardin, Richmond, Va., and James Truman, Philadelphia, Pa., committee on text-books; J. A. Follett, Boston, Mass., G. E. Hunt, Indianapolis, Ind., C. N. Peirce, Philadelphia, Pa., A. H. Fuller, St. Louis, Mo., and D. J. McMillen, Kansas City, Mo., committee on schools.

Adjourned.

PENNSYLVANIA ASSOCIATION OF DENTAL SURGEONS.

1408 Pine St., Philada., Pa., Oct. 14th, 1896.

At the annual meeting of the Pennsylvania Association of Dental Surgeons, held on the evening of the 13th October, the following officers were elected to serve for the ensuing year :

President—Naaman H. Keyser.

Vice President—Rupert G. Beale.

Recording Secretary—Theodore F. Chupein.

Treasurer—Wm. H. Trueman.

NEW JERSEY STATE DENTAL SOCIETY.

Editor "DENTAL OFFICE AND LABORATORY":

At the twenty-sixth annual meeting of the New Jersey State Dental Society, held at Asbury Park, N. J., July 29th to 31st, inclusive, the following named officers were elected:

President—Harvey Iredell, D.D.S., New Brunswick, N. J.

Vice-President—J. L. Crater, D.D.S., Orange, N. J.

Secretary—Charles A. Meeker, D.D.S., Newark, N. J.

Treasurer—Geo. C. Brown, D.D.S., Elizabeth, N. J.

BOOK NOTICE

EXTRACTION OF THE TEETH. By I. F. Colyer, L. R. C. P., M. R. C. S., L. D. S. Dental Surgeon and Lecturer on Dental Surgery to Charing Cross Hospital; Assistant Dental Surgeon to the Dental Hospital of London. London: Claudius Ash & Sons, Limited, 5, 6, 7, 8 and 9 Broad Street, Golden Square, W. 1896.

We have received this little manual from the publishers and commend it to the perusal and study of the student. It contains many practical suggestions, as also well executed illustrations on the manner of holding the forceps; the position of the operator and patient; advice as to the proper instruments to use; preliminary observations as to how to extract, etc., etc. It is well written and to the point.—Ed.

ANNOUNCEMENT.

UNIVERSITY OF THE STATE OF NEW YORK. New York College of Dentistry. (Incorporated June, 1865.) 205-207 East Twenty-third Street.

THIRTY-FIRST ANNUAL ANNOUNCEMENT AND CATALOGUE OF THE MISSOURI DENTAL COLLEGE, ST. LOUIS. Session of 1896-97.

"THE ITEMS OF INTEREST."

Our old contemporary, the "Items of Interest," has changed hands, having been purchased from the "Wilmington Dental Mfg. Co." by the "Consolidated Dental Mfg. Co.," of New York. Dr. R. Ottolengui has been placed at the head of its editorial department. Dr. Ottolengui promises much in the conducting of the journal, and is

determined to make the magazine second to none in point of interest and value of any dental journal published. We wish him "*un envio prospereux*" with the hope that he will be abundantly able to fulfill all his desires and promises.—ED.

WELCH'S MONTHLY.

"Our *new* contemporary comes to us almost in the *old* dress of the "Items of Interest." Indeed, at a cursory glance we thought we were receiving the latter journal. "Welch's Monthly" seems—from its first number—to be conducted on the same principles as the older journal, containing the same number of short articles—so acceptable to the busy dentist—which are selected with care and a thorough understanding of the wants and inclinations of its readers. The first number contains an excellent likeness of its venerable editor. We accord to our contemporary our best wishes.—ED.

SELECTED ARTICLES.

THE USE OF SULPHURIC ACID IN THE TREATMENT OF ROOTS FOR IMMEDIATE FILLING.

BY CHAS. WELCH, D.D.S., WILMINGTON, O.

[Read before The Ohio State Dental Society, December, 1894.]

Last year I was accused of bathing in sulphuric acid, which I deny, but every nerve canal that is treated by me is bathed in it.

You want to know of my success? Under what conditions to expect a failure? How many I have treated? Manner of treatment? What teeth they were? Age of patients? What is accomplished in the way of cleansing, and in the stopping of hemorrhage? Is there any danger in allowing the acid to go through the apical foramen?

You remember Dr. Callahan's most able paper on this subject at our last meeting. He recommended the use of sulphuric acid in the opening of difficult root canals, but for straight and unobstructed ones used "Gates-Glidden drill." We now, after a year's successful experience, use the sulphuric acid in every case, thanking Dr. Callahan for the first thought or suggestion of this most useful aid to the profession.

Since December 11th, 1892, I have treated one hundred and three cases, and strange though it may seem, have been successful in every one of them. I filled every tooth immediately after using the acid fifty per cent. aqueous solution, excepting in cases of blind abscess

with pus in the root canal. In those cases, after having cleansed the canal with acid, fill it with glycerine and iodoform made into a thick paste, leave it a week, then remove and fill permanently. That is the only condition I have found that you cannot fill immediately. I have used this treatment upon every tooth in the mouth, without an exception as a matter of experiment. Ages of patients ranging from fourteen to seventy-five years. Under every condition from a recently extracted live pulp to a chronic abscessed tooth.

In cases of hemorrhage in root canals sulphuric acid will always check it so you can fill immediately.

My manner of treatment is: First, apply the rubber dam. Open the pulp chamber freely, take with pliers a pledget of cotton soaked in sulphuric acid, and place it in the chamber. With a No. 5 Donaldson Canal Cleanser, pump the acid into the canal to the apex of the root. You may know when you have reached the apex by the patient complaining of pain. No trouble will arise by the acid going through the foramen. You know how dangerous it is to force a nerve broach through the foramen of any devitalized tooth, how soon you will have an alveolar abscess, but by using sulphuric acid, first on a pledget of cotton, it precedes the canal cleanser and kills the bacteria preventing this trouble.

Second. With a drop-tube flood the chamber with a saturated solution of bicarbonate of soda, which by the formation of carbonic acid gas throws out the debris, neutralizing the gas, at the same time cleanses and apparently whitens the tooth. Then dry thoroughly with a five per cent. solution of pyrozone foiled by hot air.

Third. With a minim syringe flood the canal with carbonic acid and iodine equal parts, followed by iodoform and glycerine which I force through the root. Then use chlora-percha with a gutta-percha point, which finishes the treatment, and the tooth is ready for a permanent filling.

THE PRACTICAL PLACE.

SOLDER FOR PLATINUM CROWNS OR BRIDGES ON WHICH PORCELAIN IS FUSED.

The addition of a few grains of platinum to pure gold makes a solder upon which pure gold will readily flow. Upon small work it is well within the compass of the laboratory blow-pipe, and I find it, on account of its high fusing, rather safer in the porcelain furnace.—
WILLIAM H. TRUEMAN in *Dental Cosmos*.

ALLOY AND CEMENT FOR FILLING.

Procure good alloy and cement; mix the alloy as dry as will work well; press into a flat button, the thickness of a silver dime for an ordinary cavity. Mix the cement so as to bring it to its stickiest condition; then, the cavity having been dried and kept so, fill with the cement, and quickly, before it begins to set, press on to it a plate of amalgam about the size of face of exposed cement. Press this plate into the cavity, allowing cement to escape slightly at all parts so far as practicable. With the ball end of very small burnishers perfect the union of amalgam to the edges of the cavity, and then contour by the addition of necessary amalgam. Experience with this plan for over eleven years gives me such faith in it that I have not filled a single cavity with amalgam without the cement for five years past, and I believe the time will come when the use of amalgam without some such lining of the cavity will be considered malpractice.

This use of cement saves much discomfort to the patient from making undercuts or retaining points; also from thermal changes, and other advantages enumerated above.—*W. E. Driscoll.*

PREPARING THE CAVITY FOR FILLING.

Remember thoroughness in preparing a cavity for filling is the first desideratum. A filling to last, must have a cavity perfectly prepared.—*G. O. Whittaker.*

SETTING CROWNS WITH CEMENT.

Before setting the crown, wipe the gum around the root with a solution of the perchloride of iron, which will prevent weeping, protecting the cement till crystallized.—*E. L. Custer.*

PULP DEVITALIZATION.

Secure a free exposure of the pulp, to be able to see it and to allow space for the congested or inflamed pulp. Use the pure crystal arsenic, scraping a very little of it into very fine powder. Twist a piece of cotton the size of a pin head on a smooth nerve instrument, so loosely that it can be easily detached. Moisten the cotton with carbolic acid and take up as much of the arsenic as will adhere and place on the exposed pulp without pressure. Cover the concave metal disk resting on the walls of the cavity. Fill over this with gutta-

percha and dismiss for five, six or seven days, when the pulp will be found tough and leathery, so that it can be removed without pain except where it separates at the foramen.—*Frank French, Den. Prac. and Ad.*

GUTTA PERCHA.

Professor Gray has recently adopted a very satisfactory method of using gutta-percha. After drying the cavity, he saturates it with common resin cut in chloroform and then presses in heated gutta-percha. It adheres to the wall like cement and does not pull away. He has found it very satisfactory in the mouths of his own children, where he has the opportunity of observing it closely.—*Dental Register.*

TO REDUCE PULP INFLAMMATION.

Place in the cavity, on a loose pledget of cotton, bicarbonate of soda, and saturate the surrounding parts with chloric ether. Leave in place from a half-hour to a day, according to extent of inflammation. After this there is less liability of pain from the application of arsenic, and the application will be more effective.—*Dr. Williams in International.*

PERIOSTITIS.

The following from the *International*, was presented at the American Academy of Dental Science by Dr. Bradley :

"Where there is evidently periostitis coming on after the filling of a pulpless tooth, I have prescribed a slight cathartic in the first stage, and if there is no beneficial effect from that, I have then prescribed a pill made of one grain of opium and two grains of camphor. I invariably divide the pill and give the patient one-half the quantity, to be taken when in bed and prepared to go to sleep; if they are not asleep in one hour they must take the other half of the pill, and I must say that I have had very satisfactory results from the use of this opium and camphor pill. One case in which it worked admirably was that of a young boy, twelve years of age, in whose case it was necessary to devitalize a sixth-year molar. After treating the tooth I filled it, and apparently everything was satisfactory, and he was dismissed. The next day was a wet one, and it seemed to strike him as a good day to go fishing. He came home thoroughly wet, with a sore throat as the first symptom, and during the night his

tooth began to ache, and by morning a very severe periostitis had developed. I tried to subdue it by external applications, the capsicum plaster, etc., but nothing seemed to relieve him until I gave him this opium and camphor pill. I have not seen him since, but some of the members of the family say that he went to sleep that night and had no further trouble from the tooth.—*Ohio Dental Journal*.

CARBOLIZED RESIN AS A PULP CAPPING.

In an article on the treatment of deciduous teeth in *British Journal*, J. H. Jones says:

“Notwithstanding the greatest amount of care exercised, the pulp sometimes gets exposed whilst excavating; in that case as soon as possible, I apply carbolized resin to the exposure and then place of chloro-percha, sufficiently thick to drop from the end of an instrument upon the spot, over which I again put a layer of gutta-percha, very thin. On this I am able to build up an amalgam or white filling.”

A HINT BY DR. F. E. JUDSON, ANTIGO, WIS.

In preparing a tooth for the reception of a porcelain crown (Logan or Richmond), before excavating the natural crown, if you will take a piece of French rubber tubing, about one-eighth inch wide and a little smaller than the tooth to be crowned, carefully work it up on the neck of the tooth and as close to the gum as you can get without causing too much pain, allowing the patient to wear it for forty eight hours, you can then face the root off under the gum line without laceration, hemorrhage or discomfort to your patient, which I consider quite an advantage in doing a nice piece of crown work.

If natural crown is broken off, build down with cement sufficient to give room to adjust rubber tube.—*Ohio Dental Journal*.

CLOSE OF THE YEAR.

At the completion of the present year the *Dental Office and Laboratory* will have completed its tenth year under its present form. Previous to 1887, the journal had been issued as a quarterly in newspaper form; but the publishers, recognizing the wants of its readers and the onward march of dentistry, changed the form of its issues to pamphlet form.

During the ten years past they have striven to give to its readers *at least one* original article with each issue, as well as the best selected articles from other journals.

The effort of its editor and publishers has been to do what they could to give the best thoughts, and to present the freshest literature for the contemplation and instruction of its readers. This, together with its "Practical Place," gathered from all sources and gleaned with considerable labor and experimentation, has been the "labor of love" for the profession of its editor, generously seconded by its publishers.

As age and time creep on, the editor feels no flagging of zeal to do all that is in his power to lay before the student and practitioner such things as may smooth the path of the one and refresh the mind of the other, in the doing of which he feels sure of the co operation of its publishers.

Whatever we have promised in the past, we hold to the same promises in the future.

In the mean time we invoke the aid of the profession for such articles, hints and suggestions as may be of benefit to the profession at large.

"Give and it will be returned to you a thousand fold."

Strive for the right and peace is given,
Wrong shall not prosper long or well;
Better defeat and death for heaven
Than victory on the side of hell.

No endeavor is in vain;
Its reward is in the doing.
And the rapture of pursuing
Is the prize the vanquished gain.

—Ed.

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